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Computer Weekly

Thursday, April 2, 1981

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Computer Weekly

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NEWS BRIEF

DP pay up 30%

SALARIES in DP increased by 14-16% on average in the last 12 months, higher than all other management occupations apart from accounting and electrical engineering, according to Reward Regional Surveys in its latest four-month survey, which shows programmers with an average increase of 25%, and senior systems analysts and senior programmers with 20%.

LSI franchises

UK MICROCOMPUTER company LSI Computers of Woking is planning to set up a series of 20 to 30 franchises throughout the country to sell its Systems M-One and M-Two small business computers. The franchisees will be encouraged to take responsibility for marketing and customer training, although LSI will continue to operate its own installation, after sales service and software development.

Hotel bookings

ONE hundred and fifty independent British hotels will be linked by satellite to the Best Western Hotel reservation system centred in Phoenix, Arizona, on April 7. A further 600 hotels located throughout Europe are expected to link into the system this year.

ICL-EMI deal

A MULTI-MILLION pound OEM agreement to supply magnetic tape decks for ICL's ME29 range of computers has been signed with SE Labs (EMI). It is expected that several thousand of the company's EMI 8800 micro-controlled tape drives will be ordered. ICL will market the unit as the Type 3551 magnetic tape system.

CSA plans November 'raid' to capture Japanese trade

by Kevin Cahill

IN response to indications from Japan that there is a market for UK computing skills and experience, the Computing Services Association is organising a software selling mission to the country in November. The delegation is being formed in association with the London Chamber of Commerce and Industry.

The mission is also backed by a Department of Industry subsidy of £700 for each exhibitor prepared to travel, and has already attracted enquiries from over 30 companies and firm commitments from ten more.

The events in Japan will be held at the biggest British trade display

centre in the world, the British Export Marketing Centre in Tokyo, and will take place from November 9-22, 1981.

Talks about the exact shape of the event are still being held with the first respondents to the CSA's circular and a first meeting of the software suppliers involved on the trip will take place on April 9 in London.

November's event was set up after representatives of the Japanese computer industry visited the CSA in London two months ago.

The Japanese outlined the difficulties they are experiencing in devising suitable software for the machines they are exporting. Most Japanese software companies are

very small and there is little by way of a developed software industry, as exists in the UK.

An additional attraction of the exhibition is timing, in that Japan should by then have signed the current GATT agreement. This will force the Japanese to open to international tender their public sector computer requirement, a market estimated to be worth over £7 billion in the next five years.

Much of this will be for large software systems. Despite the inherent problem of the Japanese language and the subsystems already generated by the Japanese to deal with it, the need for large telecommunications and operating systems will remain.

The mission is a dual event, an exhibition organised by the London Chamber of Commerce, and a seminar-type event currently organised by Douglas Moor of Peat Marwick Mitchell on behalf of the CSA.

Basic cost of having a stand at the exhibition is £720, which includes free shipping of equipment from the UK.

To have a stand and give a 3,500 word seminar paper will cost £940, but the seminar facilities alone will cost £520.

The London Chamber of Commerce has arranged two different accommodation packages for around £1,000, and a flight only for £660.

Marking time on viewdata

by Donald Kennett

NO formal agreement was reached at last week's discussion in Dundee on European viewdata standards by the specialist group of CEPT, the European PTT's association, because the West German negotiators wanted to refer the proposals to their industry.

It is now hoped that a set of standards will emerge from the CEPT plenary in Stockholm in June. Prestel research chief Kiki Clarke said it would not be disastrous for the UK if the final decision slipped back to 1982, because Prestel was pushing ahead and alternative display techniques had only marginal advantages over Prestel.

Enhanced Prestel versions would be tied to the spread of the Integrated Services Digital Network based on System X, which would provide 64Kbps data paths across the network from terminal to Prestel centre.

Prestel would then support encryption for secure transmission and Picture Prestel for the display of colour photographs, as well as serial and parallel character and audio coding methods that were being worked out now.

The consensus was that delay in agreeing standards would be harmful to Europe as a whole. Current discussions were designed to produce recommendations for methods of making terminals compatible with all European viewdata services without redesigning terminal design unnecessarily.

This would enable display coding within the terminal to be implemented in a variety of ways.

Proposed tax changes could kill off small businesses

Govt hits at contractors

by Kevin Cahill and CNDalloway

PUBLICATION of the government's Finance Bill last Friday has created a threat to the existence of the £25 million per year contract employment market.

Under section 34 of the Bill, contract employment agencies are to be required to withhold 30 per cent of their payments to contractors who operate as sole traders or companies.

The money will go to the Inland Revenue and be offset against contractors' tax bills at the end of the year. This will put them under great cash strain, since many will not be effectively "lending" the Inland Revenue money until the end of the tax year.

The contract market is largely made up of individual programmers and analysts who form themselves into limited private companies or act as sole traders. This frees the contract agencies from paying and accounting for PAYE and National Insurance contributions. The contractors submit invoices from their companies which the agencies pay in a single transaction.

While acting as a limited company, the individual programmer has liabilities for his own PAYE, but in some cases contractors have not made complete payments and the Inland Revenue has lost money.

It is these defaulters that section 34 of the Bill is designed to catch. But the effect will also be to hit the genuine small company, including small software houses formed by several contractors acting together.

Graham Knight, chairman of the Association of Independent Computer Specialists, said that this was another attempt by the government to suppress the formation of small computer companies. "Any individual building himself up a computer business obtains much of his work through agencies."

"Their expansion would be suppressed while they made a forced loan to the government of 30 per cent of their fee income for between 12 and 13 months while their tax affairs were settled," Knight said that the AITS would be making another attempt to get the government to see small business sense by campaigning at the House of Commons.

The way the act would work would be to have the 30 per cent deducted by the agencies chargeable against the corporation tax of the contractor's company.

However, most small companies operated by contractors are not liable for corporation tax, and the eventual outcome of the legislation will be to have many more applications for refunds on the desks of the Inland Revenue.

One senior manager at a major agency said that this section of the Bill contradicted earlier sections of the same Bill in which the Government was attempting to make it easier to start small businesses.

Many people started their software houses out of the cash flow from contract work, he added. If enacted in its present form the Act would set up three new administrative functions, one in the agencies which had to collect and account for the tax, two in the small company which would now have the task of double accounting for corporation tax, and a third and further set of tasks at the Inland Revenue.

'IBM in micro market by July'

by David Graver

IBM's entry into the personal computer market will be made in July this year, according to Jack Tramiel, vice-chairman of Commodore.

Speaking at a Hannover Fair conference last week, Tramiel followed his forecast by expressing his lack of concern at the prospect of market competition from IBM. "We are now delivering 100,000 units worldwide," he said.

Commodore is the top seller of microcomputers in the UK and although it has made only one sale in the US.

IBM, the largest retail computer company in the world, could be an outlet for IBM micro, according to Commodore's chief executive, Robert G. Taylor. "There is a very strong possibility that a contract with IBM would be a major step for Commodore," he said.

Commodore would also be able to use IBM's micro division, which has a large number of retail stores.

In both the US and the UK, delivery will begin in the fourth quarter of this year, Crotty says.

An arrangement with Sears would tend to confirm earlier reports that the product will be aimed at the home systems market. Crotty believes the system will be based on an Intel 8080 series chip with a 24-line CRT with graphics, 64K memory, CP/M operating system, and a cost of \$1,500 to \$2,000.

In another twist, a theory that the new IBM model will be an updated version of the 5100 series is being advanced by Robert Perling, President of Technology Analysis Group in Connecticut. He discounts the possibility of IBM introducing a low cost personal computer. "It would be extremely hazardous, the profit margin would be too small, and the market is not ready."

However, he too expects distribution through Sears, as well as J.C. Penney and other stores.

Both IBM and Sears have refused to comment.

IBM enters UK. Back page.



D'Agapeyeff: walked out when his plan was turned down.

D'Agapeyeff bows out

ALEX D'Agapeyeff, founder and one-time head of CAP, is leaving the newly-formed Microproducts Software Ltd even before the legal complexities of the Microproducts/CAP split was unravelled. CAP has opted for a cautious plan involving only 35 employees at Microproducts. D'Agapeyeff envisaged wider plans to make MicroCobol a de facto world standard, and CAP's decision led to his departure, followed by those of other top Microproducts staff.



MARGARET THATCHER: stimulating the microcomputer industry through public purchasing.

School micros to boost Acorn

by Brandon Gamewell

THE £4 million computer-education support programme, detailed earlier this week by Prime Minister Margaret Thatcher and Information Technology Minister Kenneth Baker, will bring substantial benefits to two British companies, Acorn Computers and Research Machines.

The programme aims to ensure that every secondary school in Britain is equipped with a microcomputer.

Any secondary school which has no microcomputer will be eligible from June 1, for a 50 per cent government grant towards the cost of either the 3802 system from Research Machines costing £1,680 or the BBC microcomputer from Acorn, which totals at £260 plus VAT with a monitor and cassette player.

The Schools Inspectorate estimates that about half of the 5,000 or so secondary schools in Britain have microcomputers, often bought largely from funds raised by Parent-Teacher Associations or local industry.

Government funding for the scheme will come through the Department of Industry, and supplements the Department of Education's £100 million of microelectronics education programme which made no provision for supplying schools with computers.

Monday's announcement was accompanied by a strategy docu-

ment outlining further the areas which will be supported by the DoE programme.

Among the proposals listed are plans for specialist teacher training, supported by a network of pilot information centres serving groups of local education authorities.

Paul Fisher adds: Acorn could find itself hard pressed to meet the demand.

NEWS BRIEF

Buyers close in on FARS

THE APL software house which crashed at the end of March, FARS Computer Services, is still up for grabs. "It's all on the go, but there is nothing definite" the receiver said. "One company has dropped out of the running, but there are a couple of others who are interested and we are still getting inquiries." FARS managing director David Spencer earlier this week said that an announcement was imminent.

BACS upgrade

BANKERS' Automated Clearing Services of Edgware, Middlesex, has ordered an ICL 2966, the machine that can run jobs under DME and VME simultaneously. According to ICL, the 2966 is worth £1 million and will replace two 1904S machines at the Edgware centre, which is also equipped with two 2960s. See Teknos at BACS, Page 4.

Lindop brush-off

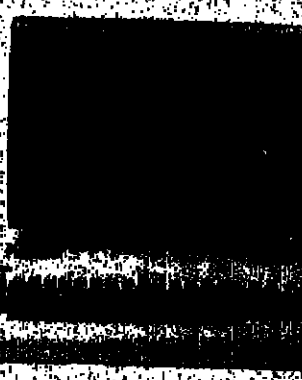
THE LINDOP report on data security last week got the final brush-off from the Home Office. In a two-page paper, Cmnd 8214, the Home Office remarked: "Governments do not commit themselves to implementing any proposals they may make, still less can they commit their successors." The Lindop committee was set up by the last Labour government.

Information year

CIVIL servants at the Department of Industry last week put forward a plan to designate 1982 Information Technology Year and Kenneth Baker, the Minister who was made responsible for information technology in January, said that both he and the Prime Minister like the idea.

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Judge restricts pickets

by Chris Youett

IN what is thought to be the first case under part of the 1980 Employment Act designed to halt secondary or flying picketing, the National Graphical Association was restrained from picketing a Midlands computer supplies firm.

The injunction was granted in chambers by Mr Justice Forbes at

Birmingham High Court last week after an application from Wilkes (PCA) Data Supplies of West Bromwich.

A dispute between the union and a sister company, Wilkes Business Forms at Bliton, arose last month over a redundancy and finally the dismissal of an NGA member led to a strike.

NCR office systems move

US computer giant NCR has moved its UK office from London to Birmingham. The move is part of a strategy to expand its presence in the Midlands and to provide better service to its customers in the region.

According to chairman William Anderson, "The market for advanced office systems offers great potential for a company with NCR's technical, marketing, and service capabilities," and the strategy is aimed at capitalising on this.

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Troubled OPM boss in hospital

IN an unexpected turn of events at US computer leasing company OPM, former vice president Myron Goodman has entered a mental hospital in New York State.

The New York-based company, which also has offices in London, filed for Chapter 11 bankruptcy on March 11. It is the object of several civil suits seeking to recover loans made to OPM against certain computer leases. The total amount involved is believed to be greater than \$100 million.

OPM's owners, Mordecai Weissman and Myron Goodman, have each declared personal bankruptcy. They are the objects of lawsuits similar to those against their company. The company is now being run by James Hassett, a trustee appointed by the federal court.

OPM was primarily a lessor of IBM mainframes and peripherals. The company's leases were unusual in that they operated under an "idemnity" arrangement, whereby OPM would lease its computers back from users if they were no longer wanted.

Losses occurred on many of these leases because the computers leased back could not bring in much revenue when OPM placed them in the field again. OPM had no insurance to cover these losses.

The suits lodged against the company centre on leases involving one OPM customer, Rockwell International, believed to be the company's largest client. Rockwell's leases were the responsibility of Myron Goodman.



HEINZ NIXDORF: "We have achieved a 25 per cent sales increase during the first quarter of 1981."

Nixdorf shuns bubbles for home-made discs

BY the end of 1981 Nixdorf will be manufacturing all its own discs, which it sees as being the main memory device through to the end of the century.

Bubble memory is suitable only for special applications, says the company, which does not see bubble devices having any significant share of the main peripheral memory market.

The LK3000 personal computer system will be discontinued immediately except for special customers.

Nixdorf has indicated that the company intends to create products for an integrated "office of the future". It has VLSI technology and has set up a substantial R&D operation in California.

Nixdorf says that the core of the future office will be the storing and filling system, surrounded by word processing, graphic input and output and finally input by voice processing devices.

The company will adopt the Ethernet network standard and use the X25 package switching system for data transmission.

Worldwide, Nixdorf has increased staff in almost every country.

Spain will receive £6 million in manufacturing investment while the number of personnel in America has risen to 2,000, where the company has experienced a 40% sales increase.

Nixdorf has 450 staff in Japan while in the Irish Republic, now a major manufacturing source for the company, the number of people employed has risen to 750.

In terms of specific products, Nixdorf's big drive seems to be in banking systems, led by the 8864 banking terminal. According to the company, Nixdorf now has banking terminals in either the first or second-ranking bank in every European country except in the UK. Banking devices and terminals now account for 30% of all Nixdorf's revenues.

Nixdorf now considers itself the biggest European software house with half company revenue coming from software and servicing sources. So far, the company has

delivered over 10,000 computer units, half in the German market.

Nixdorf will seek a General Stock Exchange quotation in 1984, has increased turnover by per cent last year, took on 2,000 more employees worldwide and will hire a further 1,000 people next year.

This breakneck expansion of the company a 50 per cent increase in consolidated profit and loss, from a profit of over million Dm (£17 million) in 1979 to 22 million Dm (£4,400,000) in 1980.

The impact on the balance sheet profit and loss was marginal with a modest £200,000 increase between 21 million Dm (£4,200,000) in 1979 to 22 million Dm (£4,400,000) in 1980.

This apparent profit slide was discounted by Heinz Nixdorf when he presented the figures last week. He said that the company had deliberately taken a 60 million Dm (£12 million) provision on its rental and leasing side of its business, to avoid a tax charge of the same amount.



Eric Bird, manager of the Microsystems Centre: counting on the needs of small business.

Advice for first time micro users

By Brandon Gamester

INDEPENDENT advice for first time business users of microcomputers, or those contemplating a first purchase, is available through a new division of the National Computing Centre.

The Microsystems Centre, formally launched in January, this week opened its first "micro workshop" in London. Further workshops are planned for other parts of the country and the next is due to open in Manchester.

At the workshop a dozen microcomputers have been loaned by different companies to form a "micro exhibition" in which anyone interested is free to try out a selection of hardware and software. It is hoped that double this number of micros will eventually be on display, each changing every couple of months. Additional services available at the workshop include consultancy, training, information and a bookshop.

Eric Bird, manager of the Microsystems Centre, told Computer Weekly that the new organisation would make itself known to all forms of business by means of the trade press, and through trade associations and other representatives.

Through a computerised database, visitors to the workshop will be able to search for any software developed for their particular business. A large software library will be built up, so that any vision interested in a particular software package can try it out at the workshop. Packages are already available for the retail, motor and pharmaceutical trades.

Finance for the Centre will be drawn mainly from consultancy and course fees. The first courses will provide an introduction to microcomputers for managerial, clerical and secretarial staff.

Consultants, on hand at the workshop, will provide their services at £20 per half-hour.

BOC offers Superbrain as intelligent terminal

By Keith Jones

IN line with the growing trend towards using microcomputers as intelligent terminals, BOC Data is offering its bureau customers the Superbrain for use in time sharing, local data capture and word processing.

As part of its price/performance strategy, BOC selected the Superbrain because it runs the lightweight GP/M operating system, thus providing BOC with the possibility of changing to other suppliers.

BOC is not marketing the Superbrain under its own name but as the DDS 1000, a portable addition to its existing DDS range of distributed processing systems. About 20 BOC Data bureau customers have already been

supplied with the more powerful DDS machines, which are based on Datapoint computers ranging from the 1500 to the 6600.

Features added to the Superbrain to enable it to communicate with BOC Data's IBM systems software at the bureau centre include "intelligent teletype" software and emulation of the IBM 3780 remote batch terminal.

In teletype mode the Superbrain/DDS 1000 could be used to access BOC services like the Datapoint financial planning system and the Status text retrieval service. Word processing can be handled locally on the DDS 1000.

BOC's plans for the DDS 1000 include the addition of an emulation facility for the IBM 3270 binary synchronous terminal.

EBC to expand Euronet

STIMULATING further growth in the European information supply industry and expanding the Euronet, the plan calls for it to be extended quickly to all EEC members and to non-members where reciprocity and two-way information flows can be guaranteed.

This year in 1983, by which time Euronet is to be handed over completely to the EEC. In the meantime, the plan calls for it to be extended quickly to all EEC members and to non-members where reciprocity and two-way information flows can be guaranteed.

Medical venture

BOC's venture in the hospital computer systems area, British Medical Data Systems has now been formally launched with offices in Watlington-Thames, Surrey. BMDS is 51 per cent owned by BOC, the rest being held by US firm Shared Medical Systems.

'Happy' settlement for Telecomputing

by Keith Jones

AFTER a bitter legal battle and weeks of discussions, Telecomputing of Oxford has reached a settlement with ECS Microsystems, the Californian firm that builds hardware for Telecomputing's TCS 4500 microcomputer.

Telecomputing chairman Bernard Pantan said that he was "very happy" with the terms of the settlement. They include Telecomputing dropping its \$12 million Californian law suit which charged ECS with breaching the contract under which Telecomputing had exclusive marketing rights to ECS equipment in Europe.

Pantan said that under the settlement Telecomputing had now sold these rights to ECS for an undisclosed sum.

Telecomputing has also given up any attempt to take a major share in ECS Microsystems. The original Telecomputing plan was to buy the 40 per cent holding in the Californian firm owned by Michael Roberts, who founded ECS in Australia.

Its main activities were transferred to California last year when US financial interests, notably the New York-based DLJ Capital Corporation, moved in.

Roberts' holding in ECS Microsystems is being drastically diluted by a major new US share issue and, according to Bernard Pantan, Telecomputing has now also scrapped its more recent plan to purchase part of the new issue.

Pantan said that ECS Microsystems needed for more money than Telecomputing could provide to keep going. Telecomputing's existing 5 per cent share would be reduced to insignificance by the new issue.

Telecomputing's dispute with ECS Microsystems hit the headlines just over a month ago when solicitors representing the Californian firm raided Telecomputing's UK offices to inspect documents about its temporary assets.

ECS Microsystems' stated justification was to recover \$450,000 owed to it by Telecomputing on equipment considered by the UK firm to be defective.

Under the settlement ECS has waived all claim to the \$450,000 and agreed to put right all equipment shipped to the UK that has not already been serviced by Telecomputing's own engineers and shipped to customers.

Microdata settles two court actions

by Claire Gooding

TWO long-standing court actions involving CMC's US parent Microdata and concerning the latter's Reality system came to an end last week.

A "moral victory" was won over Richard Pick, whose right to sell the operating system he had written for the Reality machine to a rival company, Ultimate, had been challenged by Microdata. The other resulted in a payment of \$150,000 to Ted Sabarese, president of Ultimate.

Sabarese's case was a business action concerning MSI, the New York Reality sales operation he once owned, which was taken over by Microdata as payment for outstanding debts. Sabarese left MSI and set up a rival to the Reality system, called Ultimate, using the same operating system but based on the Honeywell Level 6 minicomputer.

He then sued Microdata for \$150,000, which he claimed to be the actual value of MSI. Microdata promptly counter-sued, claiming that the trade name Reality had been infringed by Ultimate.

Ultimate is claiming the payment as a win for its president,

although Jerry Causley, managing director of CMC in the UK, was quick to point out that after one year of litigation Microdata is paying only one per cent of Sabarese's original claim.

The settlement includes the mutual withdrawal of all claims and counterclaims without any admissions of liability by any party.

The case in the UK, according to Causley, "has nothing to do with other issues" and concerns business practice and political information. He is pressing on with it and awaiting an early opportunity to go to court.

Meanwhile, Microdata is pleased with the settlement of the product case, which involved Richard Pick's sale to Ultimate of the operating system which Pick and Associates had written and sold to Microdata for the Reality system in 1975.

Microdata's sole ownership of the Reality OS has been confirmed. The \$90 million for which Microdata originally sued Pick for breach of trade secrets is not to be paid, and Pick is to be allowed full rights on an unrestricted but exclusive basis to DMSII ACCESS.

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Norsk launches first European 32-bit mini

by Kevin Cahill

THE first European 32-bit minicomputer, made by Norsk Data, was on show last week at the Hannover Fair. The machine, called the Norsk 500 and announced in May 1979, is claimed to be 40% faster overall than any existing 32-bit machine.

Fifty orders have already been received. One system has been delivered to Reading University and two to CERN in Geneva in the past few weeks.

The basic system consists of a pair of computers, the 16-bit Nord 100 acting as preprocessor to the full 32-bit Nord 500. The two operate under the common Nord operating system Sintran, which gives full compatibility with the whole Nord range.

The two systems share the main memory, which can be extended to a massive 32 megabytes.

Norsk, which has established a major position in the European scientific and research market and recently won the £12 million American F16 fighter bomber flight simulator order, has been supplying 32-bit type systems since 1972, but the N500 is the

first production model to be offered by Norsk.

The technical description of the system includes a basic 200-nanosecond instruction cycle in the N500 with a special arithmetic unit which adds and subtracts at 400 nanoseconds, multiplies in 500 nanoseconds and divides in 2,900 nanoseconds.

The logical address space of the N500 is given as 4 gigabytes for program instructions and 4 gigabytes for data. The system employs a 32K to 128K cache memory, split into two identical areas, one for data and one for programs, so that both can be fetched in parallel.

For communications the system conforms to the 1977 version of CCITT X25. There is an X21 option which allows the system to communicate with circuit switched, as opposed to packet switched, networks.

The language options offered with the systems include ANSI-77 Fortran, Cobol, Basic, Pascal, RPG, Simula, Algol and Coral 66. The basic system comes with a £75,000 to £80,000 price tag though the average value of configurations already ordered is understood to be in the region of £200,000.

Along with the N500 launch, Norsk also announced a new version of the N100 called the N100CE, meaning commercial extended. This marks Norsk's continuing effort to broaden its customer base away from the current predominance of the scientific and to establish a non-Norwegian business base.

Commentators at Hannover said that if the company keeps up its current order intake for the remainder of the year and can keep to the two-month delivery promise on the N100, turnover could double from last year's £25 million, to £50 million.

Full Hannover report on Page 6.

Pascal service

AN IBM Pascal service has been started by 21st Computer Systems of Twickenham. The company has acquired sole rights from the Australian Atomic Energy Commission to distribute Pascal 8000 throughout the UK and Western Europe.

Bridging the floppy to hard disc gap

A FLOPPY disc with a capacity of five megabytes has been presented by Verbatim Computer Supplies as a challenge to drive manufacturers to fill the gap between existing floppy and hard disc drives. The disc is made by Californian media company Verbatim. The five megabyte floppy discs are a development of the discs made for use on the three megabyte drive Burroughs uses in its dual-drive MD122. Both Verbatim and Willis, one of its main UK distributors, believe that this is the way things are going.

Naturally, Verbatim has made a prototype live-megabyte drive at its Sunnyvale headquarters to prove the capabilities of its discs, and is willing to supply information on high-capacity recording techniques to drive manufacturers. The drive uses eight-inch discs with the normal six slots for sector marking, but the tracks are laid 150 to the inch instead of the usual 48 to the inch across the disc, and data is recorded at 10,000 bits per inch on the inner track.

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ICL plug-compatible scores with major front-end deal

PLUG-COMPATIBLE ICL competitor Teknos Systems has secured a highly prestigious Clearing Services. BACS is the seventh ICL user to install Teknos 1603 front end processors as an alternative to ICL 7904 units.

Jointly owned by the UK clearing banks, BACS continues to be a highly satisfied user of ICL mainframe equipment but went to Teknos for kit to front end its twin 2960s because Teknos offered a considerably lower price and, even more important, much earlier delivery.

BACS operations are based primarily on batch processing. Put very simply, BACS takes transactions such as salary payments, direct debits and standing orders from magnetic tapes mailed or hand delivered to its Edgware computer centre by about 8,000 organisations all over the UK and sorts them to create tapes for each of the clearing banks.

But one application essential to the security of the whole BACS operation, logging magnetic tapes as they arrive, operates interactively and created problems last year when BACS wanted to transfer it from its original hosts - ageing dual 1904S machines - to the two 2960s installed at Edgware about three years ago.

Until a few months ago, all the BACS systems on the 2960s ran in a VMB environment under the software emulator, BMEEP. But last year BACS decided to change to 1900 DME in order to improve overall performance - memory usage and speed.

This change also enables the logging system to be moved over to

the 2960s because, unlike BMEEP, microcoded DME emulates the actual 24-bit word length of the 1900 Series upon which the logging communications software depends.

Unfortunately, the 2900 Series Communications Network Processors that BACS bought with the 2960s were unsuitable for use as FEPs after the conversion to DME because of the 24-bit word length.

BACS considered the ICL 7904 FEP, essentially a 1900 Series product, but ICL's lead times for the 7904 were too long to meet the BACS December 1980 schedule for a cut over to DME on the 2960s.

In March last year the organisation contacted Teknos which was able to guarantee earlier delivery of two 1603s and at a price much lower than the mainframe supplier's quote.

ICL declined to comment on its offer of price or delivery.

The logging system was transferred to the 2960s early this year and the 1904S machines, front ended by two ageing ICL 7930 "examiner only" units, are now confined on the interactive processing side to handling program development work under ICL's Maximop system.

BACS accepts about 800 tapes a day at its reception desks at Edgware and in the City of London. There are four desks at each of the two locations, every one equipped with an ICL 7181 display terminal and an ICL 7505 Teletypewriter linked online to the 2960s via the

Teknos 1603 FEPs.

The 7181s are used to enter information such as the date, the number of time reels in each delivery, the method of delivery and the method of return while the 7505s print receipts for handing over or posting to the relevant organisations.

Many of the reels contain only a few feet or even just a few inches of recorded data, so their contents are consolidated offline onto a far smaller number of reels prior to processing on the ICL mainframes.

Monthly salary payments alone provide BACS with five million items a month for processing and weekly payments are now seen as a major growth area because of the increased use of bank accounts among weekly-paid employees.

ICL declined to comment on its offer of price or delivery.

THE Teknos 1603 front end processor system is both hardware and software compatible with the standard ICL 7903/4 equivalents.

At Bankers' Automated Clearing Services at Edgware two 1603s are connected via ICL interface switches to AM10 interfaces attached to the General Purpose Controllers of two ICL 2960 mainframes operating in a 1900/DME environment. Incoming communications lines are switchable to either of the 1603s via Digital Communications Corp as "T" Bar switches. This con-

figuration was designed to provide maximum reliability in the event of equipment failure.

The 1603 is based on the M168 microcomputer hardware. Future enhancements under development include the 1603 multi-function communications processor system providing connection to both private and public networks incorporating X25 and other non-ICL protocols. Teknos also plans to enhance the system to run a VME/B environment.

The communications room separate from the main computer hall at Bankers' Automated Clearing Services has Teknos 1603 front-end processors. Seen here with BACS technical officer Ray Duggan, they link twin ICL 2960 mainframes to ICL 7181 interactive display terminals in a 1900 DME environment.



Distributed DP growth

by David Davies

DISTRIBUTED data processing is expanding more quickly in Europe than anywhere else in the world, including the US, according to Gene Lockhart, European director of computer management consultancy Nolan, Norton.

Because of complex organisational and product structures, as well as national approaches to systems development, technology, and distributed processing in Europe is high. Controlling the growth of information systems is management's greatest challenge, Lockhart added, while speaking at his company's one-day lecture programme on distributed data processing.

Conference reports distributed database, see Software Data, page 10.

Schools micro boom for Commodore

STANDARDISATION by Essex

Countryside Council on two micro for its schools and further education colleges has brought over £113,000 of business to Commodore over the past financial year, according to the council's buyer, Richard Palmer. He says the total spent by Essex in the year just ended was £175,000 and expects this to be increased in the current year.

Palmer, senior buyer for office equipment (which includes schools and further education colleges), says that 125 machines were installed last year to give some 50% of secondary schools and all further education colleges a micro each. Prior to 1980 only about 30 machines were installed.

Essex has standardised on two machines - the Commodore Pet and Research Machines 3802 - and provided a central fund for free maintenance at the Chelmer Institute in Chelmsford.

If they go for something else

IBM watchers met in London to discuss the impact of IBM's latest system. Keith Jones reports

Why long-awaited H-series 'was a big disappointment'

THE announcement by IBM of the H-series late last year had been expected beforehand by industry analysts to solve all existing system problems at a stroke. It turned out to be a big disappointment.

This was the message put over last week by John McIntosh, market planning director at Storage Technology, at The User's Guide to the Impact of the H-series, a conference in London organised by OnLine.

McIntosh, whose own company is involved with the development of a line of big IBM-compatible machines, said that what the industry had expected IBM to announce was a family of machines ranging in power from three to 20 mips, with up to 64 megabytes of main memory, up to 64 channels, air cooling, new component technology, an onboard paging device, an onboard data management system, a new relational database

manager and major software changes.

The announcement was of one 10.2 mips water-cooled machine, the 3081, with a maximum of 32 megabytes and 24 channels supported by existing software, MVS/SP and VM/SP. The only new feature on the software side, Release 3 of MVS/SP, will support the multiprocessor architecture.

But McIntosh did not expect any forthcoming H-series machines to provide more than four processors. The expected 3091 would be such a "quadruple" machine offering up to 18 mips and 64 megabytes, while two machines below the 3081, the 3061 and 3051, would be uniprocessors providing no more than six and four mips respectively.

But McIntosh was impressed by the improvement in the overall data rate offered by the 3081 compared with the existing top end

IBM machine, the 3033. According to McIntosh, who worked with IBM up to 1978, the maximum data rate for the 3033 was 24 megabytes per second, although 16 megabytes was more likely in practice, while the 3081 was up on this at 72 megabytes per second.

McIntosh thought that the biggest improvement offered by H-series would come from a change in channel architecture. He said that the channel structure on IBM machines had not changed since the days of the 1401 but that there would now be a move to "floating" channels where I/O operations could use any available channel.

As an employee of a major manufacturer of big disc subsystems, McIntosh was no doubt pleased by figures which predicted that the US overall installed capacity of disc storage would increase from just over 42 terabytes (a terabyte being one

million million) in 1980 to more than 197 terabytes in 1985.

Another speaker, independent consultant Fred Lamond, asserted that the only future for machines as big as the H-series models would be in handling new tasks, because four IBM 4341 Model 2s with eight megabytes of main memory each were far more efficient at executing multiple programs than one 32-megabyte 3081.

Lamond saw the H-series machines being used as large-scale "corporate" database machines linked to a network of regional systems, and via them to local machines. The "corporate" machine would run under MVS using the Hierarchical Storage Manager and some kind of mass storage system.

Lamond underlined the general dissatisfaction with the existing IBM 3850 MSS.



McIntosh... Biggest improvement offered by H-series will come from a change in channel architecture.

FAST move by Signetics

by Eileen Stainer

US SEMICONDUCTOR company Signetics is to second source Fairchild Camera and Instrument FAST (Fairchild Advanced Static TTL) family of logic devices.

All 37 products of the 74F line will be made and marketed by Signetics. The 74F family is pin-compatible with Fairchild's 74S Schottky series but has 75% of the power consumption and a 50% improved speed.

At the same time, Fairchild is entering into a second source agreement with National Semiconductor for its NS16032 16-bit microprocessor.

Hyperchannel system installed by SIA

by Donald Kennett

THIS second UK site to install Hyperchannel, the 50Mbps local networking system made by Network Systems Corp in the US, is the London-based bureau SIA. It plans to use the network to interconnect a Control Data Cyber 175, Cyber 720 and an IBM 4331, making them all accessible to users with IBM 2780, 3780 and HASP terminals.

Hyperchannel is a coaxial cable based networking system designed to cater for mainframe and mini applications rather than the micros and terminals end of the market. With network adapters costing

£27,000 each, it can use up to four cables to provide a secure link with an aggregate data rate of up to 200Mbps for file sharing between a variety of mainframes.

SIA's system, using three nodes initially, is to be supplied by the European division of US hardware monitor manufacturer Tesdata, whose product marketing manager, Martin Waldron, said that the processor interfaces now offered catered for 80% of the world's mainframe installations.

Marketing of Hyperchannel began in the UK only last year, although it has been sold in the US since 1977.

IBM second supplier

by Brandon Gamester

USERS of IBM floppy discs, printer ribbons and other office equipment products will soon have an alternative source of supply in the form of Chisholm's, the London-based office supplier.

The company has set up a Computer Supplies Division to serve the whole of the UK, and has secured distribution agreements with a number of companies. Products available include computer labels, floppy disc storage systems, magnetic tape and fire resistant safes.

By buying in very large quantities, the company claims to be able to offer competitive prices.

Package list

PACKAGE vendors are being invited to send details of application packages for microcomputers to the Microsystems Division of the NCC which is compiling a list for prospective purchasers at the London Micro Centre. Details, including information on any constraints or limitations, should be sent to Derek Nicholls, Microsystems Centre, 11 Fetter Lane, London EC4A 1PU.

CBASIC on Onyx

THE CBASIC compiler from Compiler Systems in La Mantia, California is now running on the Onyx C802 under the Unix-like Onix operating system.

NEWS BRIEF

Debug tool 'fills a gap'

THE industrial division of Computer Automation has produced a new debug tool called Software Scope. It is said to fill the gap between the generation of test programs and the integration of the programs on the tester hardware.

Enhanced Level 6

A new version of the Level 6 transaction processor, TPS 6 has been introduced by Honeywell. Extra features include support of Cobol 74 for writing application programs, an interactive screen formatter and a two-way transaction processing capability.

Extended

A PASCAL package for the 6809 is now available for the FLEX and MDOS/XDDS operating systems from OmegaSoft, a US company based in Ohio, and its UK distributor, SoftSell of Guildford. Standards have been extended to include hex data values, strings and string handling and real world input/output.

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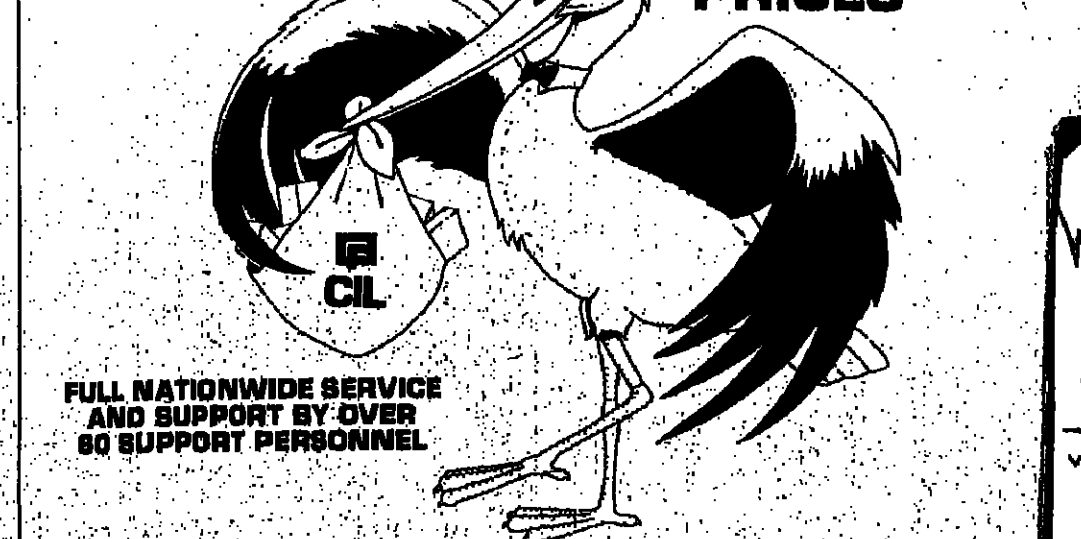
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	1980	1979
Combined Trading Results:	1.1.80 - 31.12.80	
TURNOVER	£16,280,000	£16,955,000
NET PROFITS	£ 1,037,000	£ 1,164,000
NET ASSETS	£ 3,813,000	£ 3,593,000

- 1980 year of consolidation and further expansion in Europe - substantial lease orders taken from the Dutch Government - further expansion of the UK Computer Leasing Company's large installations at British Aerospace, UKAEA, and Lloyd's - many 4341 systems delivered to 370 users in UK - IBM feature and memory deliveries in 4341 systems still delayed in many installations - many users concluded successful upgrades from 4340 systems to 4341 systems - profits satisfactory despite high interest rates - significant trend in the UK to cross-border acquisition of 4340 systems - increased costs - number of lease orders signed 28% up on 1979 although lower IBM prices and a reduction in lease order values resulted in turnover, virtually unchanged at £16.5m - conservative accounting policies continued with a provision of over £600,000 in respect of future upgrade costs and the early repayment of a term loan of £253,000 from the Orion Bank - prospects for 1981 excellent - profits improvement anticipated with general fall in interest rates - further growth in Holland and Scandinavia envisaged

Extract from the report of the Chief Executive and Managing Director

Atlantic's Annual Report and Accounts are available on application to the Company Secretary

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'International' fair has very local character

by Kevin Cahill

THE biggest single section of the Hanover Fair is now electronics and computing, and over 700 different sellers and manufacturers were there last week to display their wares.

But the international character of the exhibition seemed questionable. There were notable omissions in the shape of Japanese companies like Nippon Electric and Mitsubishi, many of the American companies were represented only by their local and very German subsidiary.

In many respects the fair looks very like a German fair for Germans, with outsiders free to come in if they want to.

The other noticeable characteristic of Hanover is that it is a "finished product" event. There were very few significant product or development announcements.

Apart from the Norak Data 500 machine, the most interesting developments were on the Japanese and some of the East European stands.

Iskra, the Yugoslavian manufacturing conglomerate, was showing a much improved Z80-based minicomputer called the Iskradata 80. The machine won a design award at the pre-fair preview, and comes with 32K or 64K main memory.

The machine is designed as a network controller with up to 16 work-stations and run on a CPM look-alike operating system called ID80.

The Yugoslavians see Germany as their main European market, though there is an agent in the UK.

The problem with the multiple-

ity of dazzling Japanese stands was to find the parent and the computer. Because of the intricate marketing arrangements the Japanese have within their own country and with various European companies the two principal mainframes, or rather the two major product streams which are actually the alternative machines from the same range, are sold by two European companies.

The mainframe line from which Hitachi and Fujitsu sell the alternative models appears in Europe as the Siemens 7.880 (Fujitsu M-200) and the Olivetti OH5500 (Hitachi M-180). No Japanese stand showed a mainframe.

Mitsubishi, whose Melcom range has a considerable market share in Japan, was not at Hanover. NEC (Nippon Electric), the only Japanese company running its own complete marketing operation in Europe, also avoided an appearance.



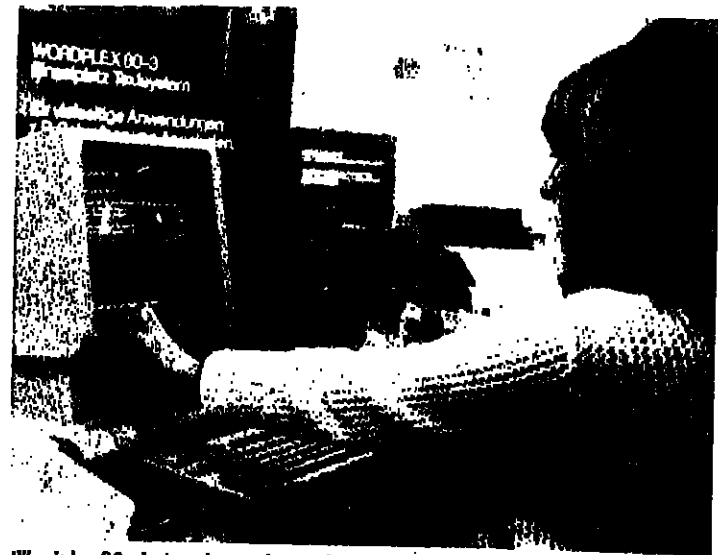
Iskradata 80: Yugoslavian system wins show award.

Of those who were there Sord, the independent small business machine manufacturer, showed its 243 micro-mini for the first time in Europe.

Matsushita, currently rumoured to be arranging a component deal with IBM, launched its full personal and small business range in Europe.

Under the Panasonic brand name, the My Brain machine has appeared as the JD-850M. Based on an 8085A microprocessor with 56K RAM, the machine has two floppy disc units as standard, each with a capacity of 1001 K-bytes. No price was quoted for the My Brain but the somewhat similar JD-800M (8085A + 56K RAM) was quoted at about £3,000.

Toshiba launched two small computers, a word processor dedicated mini priced at £5,000, and a small 64K machine called the T200 which is priced at just over £2,000 including printer.



Wordplex 80: designed to replace existing screen models.

Wordplex 80 stakes low-price claim

by Rory Johnston

LOW-COST word processing was the theme of the relatively few new products for the office launched at Hanover.

A new terminal from Wordplex, intended to replace all the company's existing screen models, was the most surprising sight of the show, especially its low price bringing it into competition with the recently announced cheap machines from giants IBM and Wang.

UK pricing for the Wordplex 80, as the new range is called, has yet to be announced, but it is selling in Germany typically for £4,500 — which puts it in the Displaywriter/Wangwriter league, although features have not been reduced as in the IBM and Wang machines.

That apart, there was a large range of electronic typewriters, some from newcomers such as Remington Rand, Japanese maker Brother, and small Texas firm Controlix.

The most ominous news for Western suppliers, however, was the first sight of screen word processors from Japan.

A prototype from Sharp and an

actual production model from Toshiba, both with German price tags of less than £4,500, were on display and Sharp was also showing a desk-top prototype inkjet printer.

The other Japanese arrival of importance for the office systems market was a table-top laser printer from Canon — described, but not demonstrated last week which uses a semiconductor to produce the laser, reducing size and cost, one-off OEM only, to \$9,000.

Xerox demonstrated its half-page-screen version of the 860 word processor, selling in Germany for £6,000, low pricing by Xerox standards.

Wang exhibited powerful new word processing software facilities, and Siemens had its system 5,500 range including the top model with an impressive full-page white-on-black screen.

Datapoint showed its new 8800 processor for its integrated electronic office for the first time in Europe.

● The Brazilian computer industry was a notable visitor at Hanover, showing terminals, small business machines and even a personal computer including a screen priced at \$940.

Packet switching 'lift-off' ahead

by Donald Kennett

ASTRONOMIC growth in forecast for data communications traffic on the European packet switching networks, British Telecom International division staff told its customers last week.

Speaking at the first of a planned series of seminars designed to keep customers informed of current and future services, the operations section head, Mr. Duncombe said that last week demand for IPSS has surpassed embarrased British Telecom.

Software problems had frustrated attempts to expand the London packet switching exchange, till the end of last year, but it had been sorted out with a contractor and it was now possible to get a connection on the day it was ordered.

However, he added, packet users were being advised to wait until the summer, when connections to IPSS would be made by PSS, the national packet network, and new network addresses will be allocated to the 300 existing users.

PSS itself had also suffered the software problems and its connections had been delayed until the summer. What had begun to add the 300 users to the waiting list to the 30 users already connected to the pre-processor service, although British Telecom did not want to open the floodgates to new applicants. It was hoped to start the full service next month.

By late next year, all public packet switched traffic would be via PSS and the network would decide whether to route international traffic via IPSS or Bursat.

Bursat itself would be in three or four years and be replaced by IPSS-type nodes throughout Europe.

This was because it was too expensive to maintain the X25 for users and X75 for network interconnection were finalised, and it was uneconomic to upgrade it.

By the end of the year IPSS would be linked to Central and South America, Israel, Bahrain, the United Arab Emirates, the Far East and 12 countries in Europe. The Prime Minister is thought to be targeting an early decision in favour of arrangements for British Telecom to raise an extra £200 million to support the planned £2.2 billion investment programme. The Treasury would make sure any extra raised would result in orders for industry and not large increases for British Telecom.

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Meanwhile, the civil service unions' strike has ended the week with no resolution of the dispute in sight. A union spokesman said: "The union has had no approach from the Government, and we would not be interested in one unless there was a substantial increase in the offer. The union has claimed 15% for Government last offered 7%."

The programme of selective industrial action continues, with the major threat of union activity continuing to be the blockade of the lead Revenue National Insurance and VAT payments by refusal of the major revenue collecting agencies, Customs and Excise, and the Inland Revenue.

Investment puts TA in the red

by Brandon Gameter

HEAVY investment in product development has eaten away the profits of West German computer and office equipment company Triumph Adler.

Full details of the company's 1980 results are not yet available but it has indicated that although it operated profitably in 1979 it will show an overall loss for 1980.

Turnover rose some 30 per cent in 1980, from DM1.24 billion to DM1.65 billion (£350m). This increase, however, is largely a reflection of the company's takeover of Perlec in the US, at the end of 1979. Turnover rose by only 7 per cent when Perlec's figures are subtracted.

In 1980 TA invested more than DM100 million in product development.



Vic Green, director of Queen Mary College computer centre, with the ICL Distributed Array Processor.

Queen Mary College's DAP comes through with first-class honours

by Keith Jones

NEWS to raise spirits at troubled ICL comes from Queen Mary College, London, where the Distributed Array Processor added to QMC's ICL 2980 has matched its original specification and is performing extremely well, according to the director of the QMC computer centre, Vic Green.

About 100 research groups all over the UK are now running jobs on the DAP to evaluate the effect of its high level of parallelism on their data processing workloads.

Most users are university groups with funding from the Science Research Council, and while the majority are involved in scientific technical type work users also in-

clude social scientists and economists.

Green emphasises that the DAP service at QMC is not being run as a commercial bureau. Users have to write their own programs in DAP Fortran, but the language has been well received, according to Green, and plenty of assistance is available from the DAP Support Team at QMC led by Professor Dennis Parkinson, seconded from ICL.

Users can gain access to the DAP service via the Science Research Council's own networks or through British Telecom's Packet Switched Service or, if they are based in London, via the London College's Metronet.

DAP handles jobs in batch mode and consists of a two-dimensional array of microprocessors — 164 x 64 on the QMC machine — each of which is loaded with the same coding simultaneously.

Applications cover three main areas: image processing, simulation and calculation. Image processing includes jobs such as pattern matching, map and scene analysis and VLSI circuit design. Simulation spans a wide range of subjects including highly practical applications like weather modelling.

Calculation work covers applications requiring enormous computational power such as the analysis of pipe networks.

French takeover lays 'base' for Euro-giant

by Jack Gee

A MAJOR step towards creating Europe's biggest database for economic, financial and technical information has been taken with the acquisition in Paris by DAFSA of a majority stake in the publishing firm Société Nouvelle d'Éditions Industrielles.

DAFSA has obtained a 57 per cent share in SNEI whose other big partner to the tune of 33.5 per cent is Société Nationale des Entreprises de Presse.

The alliance brings together the two biggest French firms in the industrial news sector.

DAFSA, which has a staff of 220 compared with SNEI's 180,

was created 11 years ago, like its partner turnover has progressed ever since at the same 20-25 per cent annual rate.

DAFSA's capital is shared between stockbrokers and major banks. It publishes a number of financial "bibles", including Liaisons Financières which cover the links between 30,000 firms. SNEI's Kompass publications cover 60,000 companies.

DAFSA's chairman Pierre Carbon says his company hopes to raise £9 million to set up a database. The Ministry of Industry has promised between £900,000 and £1.8 million by 1984 according to the firm's rate of growth.

Canon into micros

by David Craver

ANOTHER step from calculators to microcomputers is being made by Canon with the release of its CX-1 and BX-111 series. The new equipment is claimed to have ten times the power of Canon's current products, the BX1D, and a company spokesman said it was "Canon's real entry into the microcomputer market."

Software packages for financial accounting, stock control, and payroll will be offered, with UK

shipments of the system planned for the middle of June. The packages will be adapted from those running on the BX1D.

The CX1 has a 12-inch display screen with 1,920-character capacity, a qwerty keyboard and ten 'key pad, two built-in mini-disc drives with 500 kilobyte capacity each (320 kilobyte user), and 128 kilobytes of memory.

Four additional mini-disc drives and an external printer can be added to the system.

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Finance Bill closes sick pay loophole

by Cliff Dillaway

THE Finance Bill last week started the process of filling in the details of payroll changes, to be effective in April 1982, with two significant alterations to existing practices which will affect computer programs.

Sick pay met by an insurance company for a trust fund will be treated as taxable, in the same way as if it had been paid by the company. This closes a loophole through which employers have been able to see that employees receive a sick payment close to their average net pay. Using an insurance company, employers' costs were reduced because they retained the benefit of the PAYE and National Insurance that was not due.

With the introduction of the planned Employers' Statutory Sick Pay Scheme, considerable amounts of tax could have been lost. The effect on payroll programs is far from clear. The Employers' Statutory Sick Pay Scheme proposals have not yet been announced and a Bill encompassing them has been withdrawn from the House of Commons.

The other Finance Bill change is the requirement that benefits of an employee's use of a car be put through the payroll and charged to tax. In effect it is a benefit in kind that is taxable but not payable, and has an opposite effect to pension contributions under the "net pay" scheme.

executive committee of the union, scheduled to meet on Sunday.

If the dispute is not resolved, bank branches in several parts of the country will be subjected to a series of 24-hour stoppages.

Data processing staff at Midland Bank may also be involved. The union's assistant secretary responsible for the Midland, Hedley Woods, said they have asked to be included in accordance with the union's constitution to allow them to express their determination to press for the full claim, notwithstanding the CHU settlement.

There are no CHU staff in the Midland. According to Woods, 97% of the 700 staff in five Midland computer installations are BIFU members.

Meanwhile, the civil service unions' strike has ended the week with no resolution of the dispute in sight. A union spokesman said: "The union has had no approach from the Government, and we would not be interested in one unless there was a substantial increase in the offer. The union has claimed 15% for Government last offered 7%."

The programme of selective industrial action continues, with the major threat of union activity continuing to be the blockade of the lead Revenue National Insurance and VAT payments by refusal of the major revenue collecting agencies, Customs and Excise, and the Inland Revenue.

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Majority bank union refuses 10%

by Nicholas Rattigan

THE Banking Insurance and Finance Union, BIFU, is determined to press its claim for a pay rise of at least 12%, despite the decision last week by the rival Clearing Bank Union, CBU, to accept a 10% offer.

Plans have already been formulated for a second phase of industrial action following the limited success of three one-day strikes at banking installations a fortnight ago.

Whether any further action is to be taken depends on the result of a meeting between the union and the banks which was held yesterday (Wednesday) — after Computer Weekly went to press — and on the reaction to that meeting by the

executive committee of the union, scheduled to meet on Sunday.

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A SALES/STOCK system which is aimed at sorting out the problems faced by stockists supplying motor parts comes from Micro Computer Centre in South London.

The package, called Motor/Mate, keeps track of up to 7,000 numbered items, and takes into account VAT payable and other invoicing details. It runs on the Commodore Pet with disc drive and printer.

The package automatically deals with stock transactions and ac-

UK Son of Mumps catches on in the land of its father

by Claire Gooding

S VAR=1, X=14 U VDU O:'LA(1) COM I LA(1)'P3N C VDU@ERR G R
I A'P2N'/'2N'/'2N'

Although not easy to read for the uninitiated, MIMS is easy to learn and produces dense economical code. The top line is one of ten, of similar length, which make up an order entry program. The example below it is a complete check-out of date format.

Computer Design Systems, which started as a two-man team in an end-of-terrace house in Pendlebury, Salford, has built up to a 25-strong outfit with a £4½ million turnover on the strength of the MIMS operating system, a descendant of the medical operating system Mumps.

MIMS is a real time, multiprogrammer operating system, with a high level language which is designed to cope with data management, and particularly large databases, on minicomputers.

While the DP world has only recently begun to make a noise about giving more power to the end user with such facilities as interactive inquiries and instant development, a small but highly profitable firm in Massachusetts has been approaching similar ends through the specialised route of

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The KODAK Komstar Microimage Processor is another highly advanced computer peripheral.

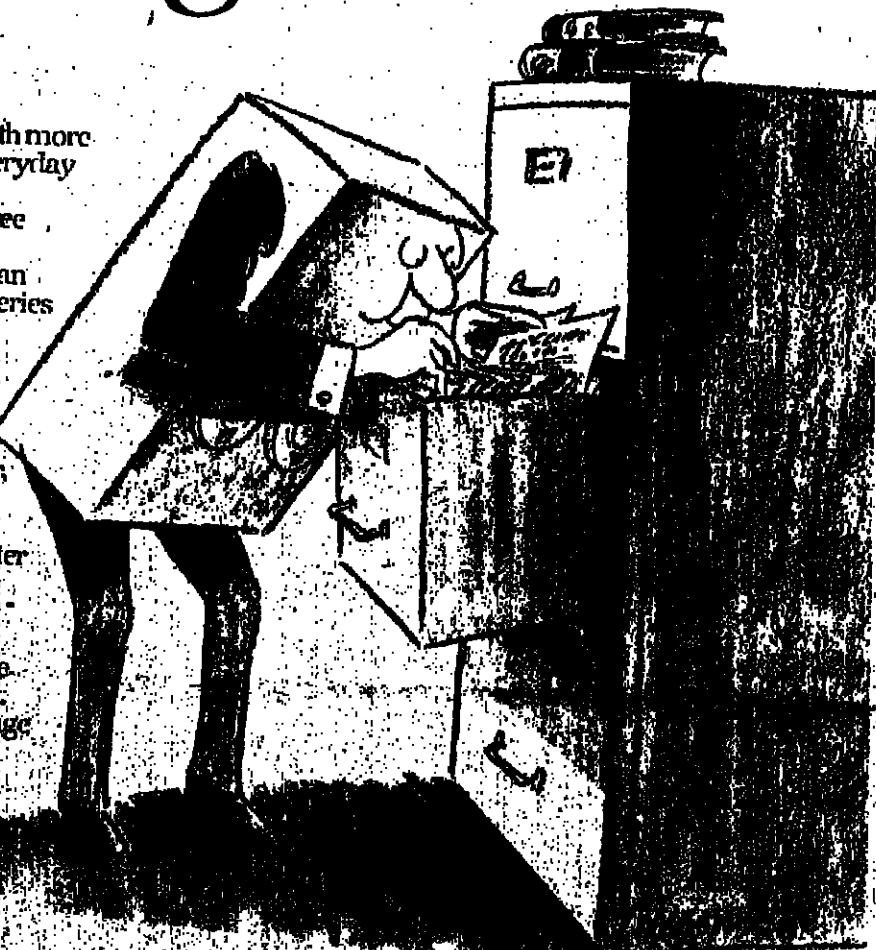
Linked to your computer it will actually produce print-out on microfilm.

Unlike previous COM set-ups it is completely dry: there are no chemicals whatsoever involved.

If your company uses microfilm, you should find out more about these latest developments from Kodak.

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SOFTWARE EXTRA

Distributed databases are coming out of research and into the commercial environment, Online conference told

Communications costs will speed spread of distributed processing

by Donald Kennett

COMMUNICATIONS costs will be the driving force behind the spread of distributed processing, consultant Dr Frank Taylor said at Online's Distributed Database conference in London last week.

"If line costs are cheap, organisations will centralise their databases," Taylor said, "but if they are expensive they will distribute like mad."

"PTT tariffs always an unknown quantity, but my feeling is that communications costs will continue to rise. It is unlikely a revolution in data area would take less than four years, so if it happens there is time to take account of it in the next redesign of the system."



Dr Frank Taylor

Problems of DBMS design

by David Craver

ANew approach to query processing techniques was necessary when designing a Distributed Database Management System (DBMS), according to the presentation made by Dr Stefano Spaccapietra at last week's London conference.

He noted that while the first task of a distributed DBMS system was to ensure that users were aware that data was distributed over several computers at different locations, there were two particular problems concerning query processing in a distributed environment. Data network transmission from remote locations could be three times slower than access to main memory and the valuable potential for parallel processing of requests for data from different computers, because parallel data transmission over the database network.

"It is essential to undertake as much local processing as possible with distributed database so as to minimise communication costs."

base techniques, Taylor said in response to a question from the floor.

A distributed system could cost more to implement than one based on a single miniframe and a need for frequent structural changes could point to a centralised system.

But an optimally distributed system could be cheaper to run, save staff time by having a quicker response and by providing a fuller dialogue and could enable the smaller units involved to keep better pace with events.

Introducing the conference, chairman Dr Jerry Gross of consultancy Data Logic said that there was a strong thrust towards distribution of databases stemming from the rate at which prices of processors and peripherals had fallen, but many problems which had caused grief 10 years ago still existed - chiefly because of slow links between nodes.

Dr James Rothnie (Computer Corporation of America) described a spectrum of distribution with remote access to a central system at one end and full distribution of

processing and storage, including replication and redundancy, at the other.

In between were decentralised processing with no communications, distributed applications sharing centrally-held data, visibly distributed data (where the user had to know where each item was) and invisibly distributed data (but without replication).

Tabulating the presence of desirable attributes, Rothnie suggested that performance improved steadily down the list towards the fully redundant system, but more problems emerged as well.

Centralised systems scored badly on communications costs, expandability and reliability, but were top of the list for economies of scale; the marginal cost of adding more data or more transactions was less up to the limits of system capacity and overheads were lower on buildings, security measures and staffing.

Separate processors and distributed applications militated against integrating a database, advantages of which had been one of the initial motivations for moving

from creating separate files for each application towards generalised databases in the past.

The fully redundant distributed system scored all round, with indefinite expandability suggested as its most significant benefit.

Problems which built up included how to handle distributed query processing, how to ensure that replicated updates were consistent, how to get a site recovering from failure back into the system and how to manage the directory of fragmented items.

Rothnie highlighted three of the most difficult areas: Concurrency control, where potentially hundreds of users were busily updating the same items which they each thought of as their own, had been a problem for many years with online systems.

Solutions which brought with them excessive synchronisation traffic had to be avoided.

Distributed locking mechanisms could be used, with one copy of each item designated the primary copy on the basis of traffic patterns expected at design time.

Query processing brought a new

source of delay, but it was also an opportunity for parallel processing.

The alternative was illustrated by an example in which project, supplier and item information, held at three different sites, were needed to identify a part.

By going through the full list of 100,000 items serially a 55-hour delay was incurred.

A different technique was obviously needed, to combine the three types of information and compute a result.

Lastly, the reliability goal had to include the need to ensure continued and correct operation in spite of failures.

For example, if a node A initiated a transaction to debit B and credit C and a failure stopped C from getting the message, it would be better to cancel the transaction than have it half completed.

Rules of thumb included: treat missing nodes as if they had never existed; failure detection is traditionally by a time-out mechanism; re-start nodes by persistent communication until you get a response.



Taylor: "Communications costs will continue to rise".

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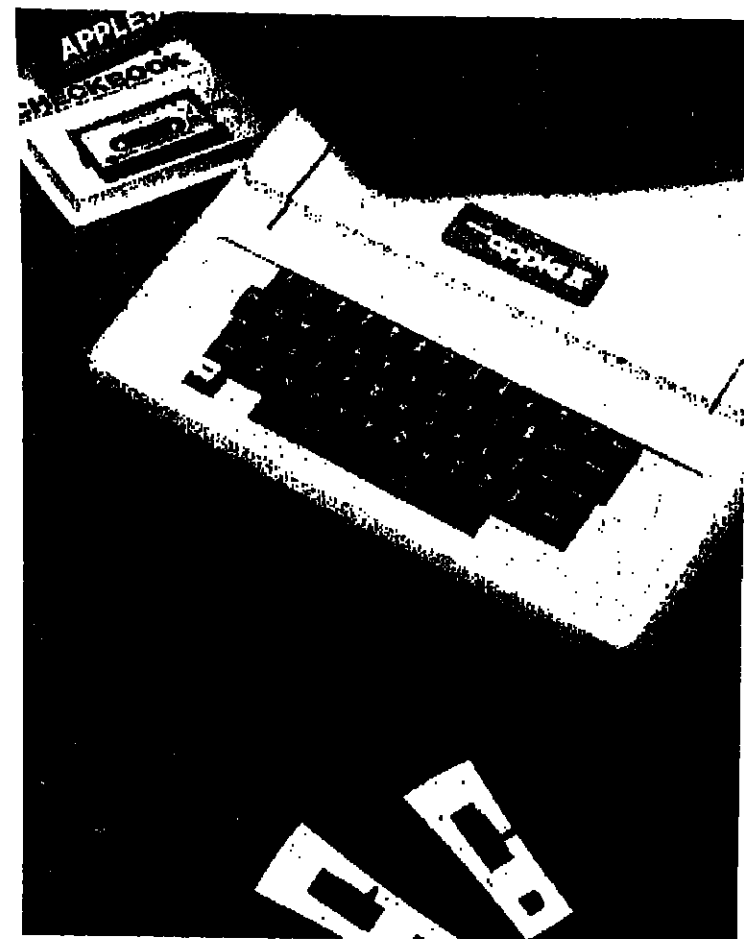
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The Apple II, which comes with a choice of 8K or 16K memory.

Apple makes bid to secure its place in US education market

by Eileen Stainer

EDUCATION is to continue as a major market for the Apple II in the US, and the increasing amount of software is encouraging Apple to think that it can strengthen its position and keep out the Japanese.

Some 19 major US publishing houses have entered, or are about to enter, the software for education field, which has led the general manager of the education division of Apple Computer in California, Gregory Smith, to believe that the company can remain powerful in this market.

The one thing which could let the Japanese in, says Smith, is if they emerge with Apple-compatible machines, although this does not seem to be their policy yet, he adds.

"Every month the Japanese stay out of the microcomputer education market, the more secure Apple gets," said Smith. He added

that British publishers had also shown interest in the education software side of the market.

In a recent Creative Strategies survey of education microcomputers in the US Apple came out top in sales shipments, having the highest percentage of the market.

Tandy, or Radio Shack in the US, came top in unit sales while Commodore took most of the remainder of the market in either case. In total the three companies account for 85% of the market.

However, the survey predicted that the present potential market will be saturated by 1987, given the current growth rate. Smith's reply to this was that the limit in the US is a long way off, and as yet only 13% of schools in the US have a microcomputer. Business schools alone plan to have a microcomputer for each pupil eventually.

According to the survey, it is likely that the number of potential

users will increase over the next five years because of the increasing penetration of educational institutions and the expanding use of microcomputers in education.

About 25% of Apple's total sales have been to education and this represents about 200,000 units. Smith thinks that this proportion will stay the same over the next year, but then decline steadily over further years.

The response in education has been much greater than Apple anticipated, according to Smith. Schools that bought one system in 1978 bought another four or five the following year and another 30 the next, and this has been a normal pattern, Smith told CW.

Most of the sales (usually of Apple IIa) go to high schools for pupils between the ages of 12 and 18. However, there are no discount schemes for schools in the US, as there are in the UK from

Apple distributor Microhouse Computers of Hemet, New Jersey.

A computer literacy package offered for first-time buyers in education including Basic tutorials for the class, programming concepts and teacher training materials. The package, given free of charge, is worth \$300.

For the future, Apple is looking to industrial and military education with a Pilot-based language. The company has enhanced its by adding colour graphics capabilities and character generators. According to Smith, this market is not as big as the traditional education market, but it is more secure as there is always money to make purchases.

The complete microcomputer in education market is predicted to be worth \$350 million a year by 1985, and is expected to account for 20% of the total microcomputer market, according to Creative Strategies.

Cassette storage with disc-like features developed for Nascom

A CASSETTE storage system which has the reliability, convenience and ease of use of a disc storage system has been developed for the Nascom microcomputer by two computer hobbyists in Cupar, Scotland.

Mike Hendry, a doctor and Maurice Shepherd, a lecturer in chemistry, both own Nascom systems, and decided there was a market for such a device. The key to their concept is an operating system which is similar to a disc operating system.

When used with the cassette drives, it allows the digital tapes to behave like discs, giving them the reliability and convenience of discs without the expense. However, the speed is the same as that of cassette, which is slower than disc speed.

Their system uses Philips mini-cassettes which measure about one inch by two inches and run for 90 seconds holding 64K of data on each of the two tracks. The input and output is controlled by a 280 serial I/O chip which is housed on an interface board that connects up to the NasBus.

The operating system is stored in 2K of EPROM which fits on to one of the Nascom II boards, along with 2K of RAM memory as work space. The two mini cassette drives interface with the Nascom by ribbon cable.

Data is written onto tape at a rate of 6,000 characters per second synchronous, which is equivalent to 7,500 characters per second asynchronous, in blocks of 2K similar to a disc system. One block is a directory and keeps track of files, tape numbers and block numbers.

For about £299 for a double drive system, the novel storage method is available from a company in Edinburgh called Computer Interfacing and Equipment. Director of the company Mike Anthony spotted the system when it was demonstrated at a monthly meeting of the Scottish Amateur Computer Society.

Shepherd told Computer Weekly that Nascom had been approached with the device, but there had been no response to the cause of the confused state of the company at the time. Peter Huth, director of Altec Tech, a company which has taken over the Nascom business, said that he had been in the hands of the receivers for six months.

Although Matthews was interested in the device, he did not take over Nascom through the interest was not followed up. Now, receivers W. H. Cook & Co. have another buyer lined up, should be announced in a week time.

Cash-and-carry micros

KETTERING-based computer company HB Computers is forming an associate company called Computer Supermarket to cope with the hobbyist and educational microcomputer market. It will be based in Corby.

Alfred Hambley, joint managing director of HB Computers with Colin Stanley, is giving up this position to become managing director of the new company. HB Computers has only recently expanded, with the acquisition of Interwood Computers of Luton last November. This site, together with the Kettering base, will continue selling micros to the business and professional markets.

Hambley is convinced that there is a need for a cash-and-carry style operator in the computer field, particularly in the hobbyist and educational markets. Hobbyists are likely to be able to carry out basic servicing of the equipment and will need parts and accessories to do so.

HB Computers has been running a cash-and-carry operation parallel with its normal marketing procedure for some time, but a conflict of interests arose with the type of service offered by each. The Kettering and Luton bases will concentrate on offering sales, service, hardware and software training and support services to their customers.

The new supermarket will take the form of a branch in Kettering, which is situated in temporary accommodation provided by the town's industrial development corporation, until permanent premises are completed.

COMPANY NEWS

CTL pours more cash into sales, marketing

TURNOVER up about 16% on 1979-80 with profits "something better than last year" will be reported by Computer Technology Ltd, CTL, for the year ended last Sunday, April 5, says managing director Robert Finch.

The company expects turnover to be around £8.6 million. The year ended April 5, 1980 showed profits before tax of £581,000 on a turnover of £7.4 million.

CTL is the Hemel Hempstead-based microcomputer manufacturer which forms the operating part of Information Technology Ltd, ITL, whose other two arms are Office Technology Ltd, OTL, and Network Technology Ltd, NTL. Neither of these two is yet trading, though sales are expected to begin in the financial year just started.

Finch notes that CTL's trading performance is not exceptional, but says that some deliveries have been held back to bring them into the new financial year and smooth the sales pattern.

He adds that the company has a history of conservative financial

management, with income used for reinvestment to avoid building up debt. CTL finished the year with about £100,000 in the bank and no loans.

But Finch emphasises that there has been profit improvement. "We've been forgoing profits," he says, "but we mustn't have a profit dip. We've had six years of profit growth that was very hard won, and we mustn't let it dip back."

The year just started will see a significant extra investment in sales and marketing, he adds. Historically the company has operated on a sales force comprising about eight per cent of total employees, but this was 11% last year and will be raised to 15% in the current year. For 1982-83 he plans to increase to 20% which will, he says, put the company on a par with similar US manufacturers.

Finch cites the traditional weakness of British businesses - good at making, poor at selling - as background to his commitment to boost the marketing effort. "We have very good customer satis-

faction," he claims, "what we've got to do is increase sales aggression."

He does not expect the number of employees to rise significantly, however. CTL currently has 373 people, only nine up on a year ago. About 150 of them are field service engineers.

The company has a range of three microcomputer systems - the 8026, 8046 and 8066 - with an entry level price of about £50,000. Currently a third of sales come from OEMs, but this is concentrated in two key customers. One is ICL, to which CTL last year sold £1 million of front end processors, and the other is the European Space Agency, which uses CTL machines for satellite testing and brought the company about £0.5 million in revenue last year.

The aim this year is to increase the OEM: end user ratio to nearer 50:50, says Pat Groarke, responsible for sales to major systems houses. Though the company has built up good contacts with small and specialised systems houses, it



DAVIES... Push for profits.

is now to concentrate more on large OEMs like Logica, Data Logic, Leasco, Scicon and SPL. Groarke intends to push CTL at the top 10 or 12 systems houses, and expects to sign general contracts with three soon. His target is £1 million of revenue this year, growing eventually to around 30% of CTL total business.

Aiding the sales drive is the company's latest development, the Intelligent Communications Environment 8000 (ICE 8000). This is a programmable communications product using the Class high-level language to allow users to write their own protocols to link computers from different manufacturers.

Alarm bells ring at Data General

by Brandon Gamester
US mini-maker Data General has reported a sharp profit drop in its second quarter, and according to president Edson D. de Castro there is little sign of any improvement in the near future.

"Our profit margins continue to be adversely affected by the inflationary pressures of wages and materials costs, by costs of litigation, and by the stretch of the US dollar in relation to European currencies," says de Castro.

To offset its increasing costs, the company raised prices on most of its computer products by about 5% on March 18 and has reduced its staff from 14,370 in its first quarter to 14,270, despite an increase of 200 sales, systems engineering and service staff.

Excluding extraordinary earnings, net second quarter profits were \$9.8 million or 83 cents per share, compared with \$12.7 million or \$1.21 per share for the second period of 1980.

Turnover for the quarter advanced from \$146.7 million in 1980 to \$162.1 million this year, service and other revenues increasing 44% from \$23.5 million to

\$33.8 million for the corresponding quarters. According to Data General, most of the strength in orders continues to come from its larger systems, notably its MV/8000 32-bit mini (the first UK installation of which was announced a couple of weeks ago) while demand for smaller products continues to be slack.

About a third of DG's current sales come from Europe.

Intel-Matra deal

AGREEMENT has been reached between Intel and Matra of France on a joint venture research company which will give the latter access to Intel's NMOS technology circuits. Intel gets direct access to the French market for its US exports. The venture is awaiting French government approval.

STARTING your own company: Kevin Cahill's short series has been concluded. He is currently finding out how companies which went looking for money have fared, and will report back in a few weeks.

A message to all systems engineers

Multicore is yesterday

Videodata is tomorrow

Are you a systems engineer, designer or manufacturer faced with the problem of designing or operating a multiple data communications network for a large industrial or commercial complex? If so, 3M Interactive Systems could spare you the problems of multicore communications.

Multicore not the answer
Everyone is familiar with headaches that conventional twisted-pair, point-to-point wiring can give. It's expensive to install. Difficult to service. And very costly to re-route or add on to. You get to the point where operating systems have to conform to wiring plans, instead of the other way round. Which is silly, given that there is an alternative.

Videodata - One cable for everything
Instead of using dedicated paired-wires for each circuit, a Videodata network is designed around a single, broadband 1/2 inch coaxial cable. This modest-looking object is capable of carrying, simultaneously, up to 20 video channels and several thousand 2-way data channels.

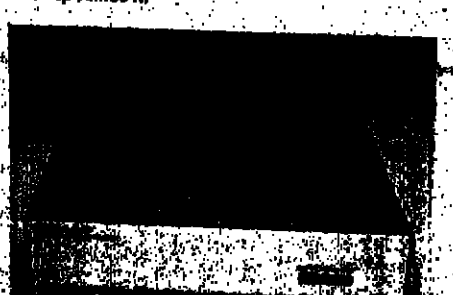
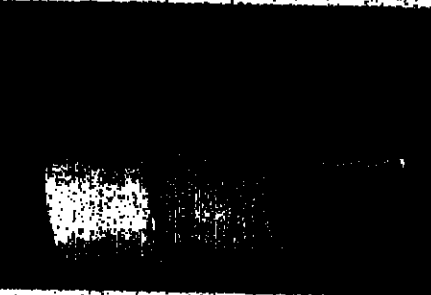
Think of it. One cable for all your data, point-to-point speech and vision transmission. And the signals are totally 'clean', shielded from outside interference and physical disruption by the cable's aluminium jacket.

Which is not the only benefit this sturdy construction can give you. Ultimately, it means you can forget about conduits and ducting!

All without relocating the entire plant, and at a fraction of the cost of re-laying a dedicated paired-wire connection!

Modems to match
Of course, there is more to Videodata than just cables and taps. To provide the essential interface between equipment and communications systems, 3M designs and builds a complete line of broadband Modems, to interface terminals and computers to the cable.

Videodata - How you can benefit
Videodata is the most up-to-date communication system around today, giving a unique competitive edge to the systems designer who specifies it.



The coaxial alternative

For years, engineers have been using coaxial cable to transmit multiple high frequency radio signals. Now, 3M have taken this broadband coaxial concept and adapted it for large in-plant data communications networks. The system is called Videodata, and it offers a reliable, economical and proven alternative to twisted-pair wiring.

Getting at the network

Whenever and wherever you need to tap into the Videodata network, it's a matter of minutes to slot-in a heavy-duty tap. Think of the flexibility. You can move terminals or whole departments around. You can add-on extra computer systems and expand or re-site existing systems. You can even tap-in to the emerging Local Area Networks.

3M has the experience and marketing know-how to help you plan, sell and expand your Videodata network

Look into tomorrow's system. Today, call Mike Bailey at Interactive Systems, 3M United Kingdom Limited, 3M House, P.O. Box 1, Bracknell, Berks, RG12 1JU. Telephone: Bracknell (0344) 58301.

3M

Olivetti recovers to double its profits

OLIVETTI, the once stricken Italian computer manufacturer, has announced substantially improved year end results for 1980. Olivetti's vice president Carlo de Benedetti, to whom most of the recovery has been attributed, announced that holding company profit doubled from \$24 million in 1979, to \$48 million last year.

De Benedetti, who joined the company three years ago as chairman, bought in the French St Gobain Poul, a Mousson group, as a source of capital. He also invested substantial capital of his own, and has brought the company from losses which began in 1975 and continued through to 1978, to its present state, with turnover up last year by 22% to 1,102 billion lire.

The company also generated internal financing of 201 billion lire and made early repayments of 37 billion lire of medium-term pool loans.

In addition, the company reduced the massive debts it raised during the loss-making years by 110 billion lire.

De Benedetti revealed that shareholders would be asked at the company's May Annual General Meeting to approve a bond and share saving capital raising operation of 180.5 billion lire.

This new capital is understood to be needed to enable the company to continue its acquisition policy in the US where it has recently been buying small high technology companies.

CW SHARES TABLE

Date: 4/4/81		Index: 100.00 Change: +2.00		US Stocks		UK Stocks	
High	Low	Stock	Price	Change	High	Low	Price
100.00	98.00	Alcatel	110	+10	100.00	98.00	100.00
100.00	98.00	Amstrad	110	+10	100.00	98.00	100.00
100.00	98.00	Apple	110	+10	100.00	98.00	100.00
100.00	98.00	Atari	110	+10	100.00	98.00	100.00
100.00	98.00	Burroughs	110	+10	100.00	98.00	100.00
100.00	98.00	Cadillac	110	+10	100.00	98.00	100.00
100.00	98.00	Casio	110	+10	100.00	98.00	100.00
100.00	98.00	Commodore	110	+10	100.00	98.00	100.00
100.00	98.00	Control Data	110	+10	100.00	98.00	100.00
100.00	98.00	Cray	110	+10	100.00	98.00	100.00
100.00	98.00	DEC	110	+10	100.00	98.00	100.00
100.00	98.00	Digital	110	+10	100.00	98.00	100.00
100.00	98.00	EG&G	110	+10	100.00	98.00	100.00
100.00	98.00	Emulex	110	+10	100.00	98.00	100.00
100.00	98.00	Ensign	110	+10	100.00	98.00	100.00
100.00	98.00	Eprom	110	+10	100.00	98.00	100.00
100.00	98.00	Exxon	110	+10	100.00	98.00	100.00
100.00	98.00	Fairchild	110	+10	100.00	98.00	100.00
100.00	98.00	GenCorp	110	+10	100.00	98.00	100.00
100.00	98.00	IBM	110	+10	100.00	98.00	100.00
100.00	98.00	Intel	110	+10	100.00	98.00	100.00
100.00	98.00	ITT	110	+10	100.00	98.00	100.00
100.00	98.00	Kodak	110	+10	100.00	98.00	100.00
100.00	98.00	Logica	110	+10	100.00	98.00	100.00
100.00	98.00	Matra	110	+10	100.00	98.00	100.00
100.00	98.00	McAfee	110	+10	100.00	98.00	100.00
100.00	98.00	Micro Channel	110	+10	100.00	98.00	100.00
100.00	98.00	Mitsubishi	110	+10	100.00	98.00	100.00
100.00	98.00	Nascom	110	+10	100.00	98.00	100.00
100.00	98.00	NCR	110	+10	100.00	98.00	100.00
100.00	98.00	Novell	110	+10	100.00	98.00	100.00
100.00	98.00	Onyx	110	+10	100.00	98.00	100.00
100.00	98.00	PerkinElmer	110	+10	100.00	98.00	100.00
100.00	98.00	Polaroid	110	+10	100.00	98.00	100.00
100.00	98.00	Rockwell	110	+10	100.00	98.00	100.00
100.00	98.00	Sony	110	+10	100.00	98.00	100.00
100.00	98.00	Tandem	110	+10	100.00	98.00	100.00
100.00	98.00	Toshiba	110	+10	100.00	98.00	100.00
100.00	98.00	Unisys	110	+10	100.00	98.00	100.00
100.00	98.00	Videodata	110	+10	100.00	98.00	100.00
100.00	98.00	Wang	110	+10	100.00	98.00	100.00
100.00	98.00	Xerox	110	+10	100.00	98.00	100.00
100.00	98.00	Yamaha	110	+10	100.00	98.00	100.00
100.00	98.00	Zenith	110	+10	100.00	98.00	100.00

The table shows the closing prices in America on Thursday and the mid-day prices on Friday for London. The share index is based on the prices of the UK companies in the table. High and low prices have been adjusted where necessary.

Shares traded under the United Securities Market or under Rule 143(2)(a).



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A dream of automated system and software architecture

I HAVE a dream. Part of the dream exists already. Most of it is still a dream.

I am sitting at the console of my personal computer, which in this case I am going to use for system architecture help. As I pull the joystick controlling the "reliability" attribute upwards, a red column inches (or does it millimetre) slowly upward in the direction of the unattainable "perfect reliability". As the red reliability attribute increases, the computer searches its technique/attribute handbook for suitable design techniques.

This means it is looking for techniques for all levels of the system, programs, data elements, databases and hardware - perhaps even human organisational factors - which are known to produce the required levels of reliability. As it finds them it includes them in the design, automatically replacing less reliable decisions made a few seconds earlier.

It automatically computes the total multi-dimensional effects (portability, maintainability, user friendliness, performance, etc) and makes sure these are within the boundaries I have set.

Then it dynamically draws a blue line indicating increasing levels of investment, and a pink line indicating increased levels of operational cost. I see the blue and pink cost lines on the yellow background approaching my planned (budgeted) level and I hear a warning beep as the cost passes one of the lines.

I keep pressing the reliability bar higher and higher. I have not exceeded my "worst case" cost criteria, and I can't wait to see where this ends. I notice that the reliability demand bar only seems to be moving at a snail's pace, while the cost bars are shooting speedily forward.

I have obviously reached the point of diminishing return on investment, and I cautiously back off my reliability joystick to the point indicated as optimal by a

this green line crossing the red reliability bar. Pressing the "P" for printout key, I get the details of the design specifications, together with cost and effort estimates, as well as estimates of uncertainty of the computer's own estimates.

I am a bit astonished to see that the design spec includes triple redundant distinct software, and that my favourite database management software has been eliminated in relation to my own suggestions for a departure design. But I know, from sceptical experience, that the automatic design system is as correct as I will ever be, and I have to meet the design inspection meeting deadline today.

I grab the design specs output diskette as I leave, so I can recapture the detail and dynamics of the design process for the inspection group if they want to look at alternatives during their post-inspection wrap-up session.

Unfortunately (put away your chequebooks and stop drooling), this is the part of my dream that does not yet exist. But, we are hard at work making it come true.

Last year my colleague Lech Kraznik, of University of Krakow, put in the hard work of programming and doing most of the detailed design stages of automated Design by Objectives on the air. In December I could demonstrate the system in Tokyo (and we have people from there who want to participate in the project, as well as people from major manufacturers in the US). By the time this column is printed I will have demonstrated (if the hardware appears on site) the system to the Software Engineering Conference in San Diego, at the Tools Fair.

There are a number of attempts at automating "software design". These all seem to stop at the level of documenting the logic and perhaps the modular structure. Or perhaps they are merely high level algorithmic program generators pretending they are "design" tools.

The tool we are developing will

be aimed at total system design (program design will be possible, but not a necessity) and will distinguish itself from other earlier systems because it concentrates on wholeheartedly on attaining specified attributes of, for example, cost, security, reliability, portability or any other factor of interest. I don't know of any other system which even has this ambition level.

The present project is best characterised as a research project without commercial ambitions. We are trying to learn what is possible to automate, and where the limits to growth lie. What is up and running is best characterised as the skeleton for the great leap forward. We can specify both attributes and design decisions manually, and we have several of the analysis tools in place. But, although we are now prepared to plug in the experience (in the form of technique/attribute tables) and intelligence (in the form of technique selection algorithms), this is not yet done.

So the first stage is best thought of as a very structured text editor, specialised in the area of systems design. We can, with single key-strokes, jump up and down a design hierarchy, or retrieve the documentation area which corresponds to a list of places that match a keyword.

10 YEARS AGO

From Computer Weekly of April 8, 1971 . . .

ABOUT 250 employees in the machine shop at ICL's Croydon works are to lose their jobs on June 1 as a result of the continuing reduction in mechanical content of today's computers.

The British Computer Society has registered a new company under the name British Informatics Society Ltd. for the sole purpose of protecting the name "British Informatics Society". . . Nicholas Edwards, a Conservative MP, told the



Tom Gilb is an independent consultant, lecturer and author on computing topics.

But there remains a lot of hard creative work to be done before my dream is there. Any readers who are prepared to share in some of that hard work, are welcome to share with us what we have of ideas, experiences and software (UCSD Pascal on Apple and shortly on Cyber).

As progress is made, I shall be happy to share more with readers. I don't know if the dream will ever function as well as an ingenious human designer. But the fun will be the journey itself. By the time we get there, we shall, we hope, have a new set of dreams.

Gilb's Hypothesis: It is possible to construct a crude automated systems design system which is superior to the majority of human effort today, but inferior to the best design "masters". By doing so we might get some teachable understanding of the mechanics of the design process itself. We need that!

Tom Gilb

Software scene looks like a micro rip-off

WITH the government keen to expand the use of microprocessors, the setting up of a micro centre by the NCC to assist the first-time user is timely. Unfortunately, the centre will concentrate more on hardware than software, an area which even the NCC has described as "patchy and poor".

Patchy and poor are hardly the terms used by many business micro users who discover, rather too late, that it is the software part of their micro enterprise which gives most concern. This is hardly surprising to the DP professional who views with alarm the relative attention given to the purchase of micro hardware compared to that of software. Misunderstanding on the part of the purchaser, misjudgment on the part of the software provider and misguidance from the vendor all contribute to the general mistrust.

Unless the problem of suspect software packages is tackled soon, the problem could escalate out of hand. The local high street battle lines are already being drawn up, with Currys predicting a UK micro market worth over £100 million, involving over 65,000 units - most of which apparently are destined for the business user. Meanwhile such noted vendors of electronic gear as W. H. Smith and Boots are threatening to join the micro sales rush, especially now that Sinclair appears determined to conduct a one-man price slashing operation.

It cannot be long before micro hardware will be available as a give-away with each subscription taken out for "Your Personal Micro" or with each teach-yourself pharmacy kit. The more traditional electrical sector will counter with free micro with every video recorder sold, while the micro specialist stores will have Sylvia Kristel personally promoting their products.

What is certain is that software packages will never be issued free with the hardware ration. While Acorn, Apple and Pet will be used as vendor loss-leaders, the demand for professionally produced microsoftware packages will be in

ever-increasing demand, with microsoftware, which continues to receive little support or encouragement from installation users, management or DP teams.

It does not take long for the DPM to convince himself and his senior management and users that the application requirements of the company are specific, select and highly singular. Such singularity can only be met by the in-house programming and systems team.

Such traditional and independence is notably absent in the micro world where those involved are usually only too glad of a helping hand. The stand-alone micro home hobbyist is no exception and many are keen to join the local micro club. For the micro business user, such mutual benefit centres are in short supply.

Only the IDPM has accepted the micro challenge and founded a national micro business user group, Micus. Otherwise going help is about as likely as getting tickets for the Cup Final.

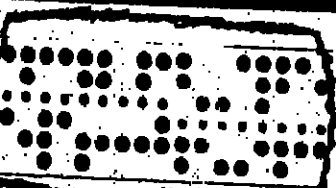
For the micro user, the software scene can often be described as a micro rip-off. Standards, documentation and guarantees are in short supply as after-sales engineering services. There is no method of knowing whether the software package has been created by a co-operative working from home or from a professional company specialising in micro software with full resources for evaluation and testing.

One solution is to hire consultants to advise the business user. This advice could cost more than the complete system. Funding a national set of approval awards would be costly unless the government could be persuaded to direct some of the lavish funds being ploughed into micro hardware development.

Microsoftware users should not be exposed to the luck of the draw. Otherwise the drawbacks involved will end up as the expensive responsibility of the DP industry as a whole.

Alan Simpson

Focusing on a mere male



Way-out way in

I AM a little worried about the future of business efficiency in Northern Ireland, John Fraser of Ulster Polytechnic has sent me an admission ticket to a Business Efficiency Exhibition in Belfast (run by a local firm, not BETA). The exhibition is supposed to be the ticket to a prosperous future. I don't know how many of you remember paper tape but if you use this sort of Ulster the sprocket holes are going to cause the tape reader plenty of confusion!

MY friend Alan Simpson, whose words of wisdom appear above, hasn't half brought down the wrath of the furies on himself for his remarks the other week about women in computing. We are investing in another ton of newspaper to print all the letters. Whether he was being a sexist swine in saying many women are not committed to the career, I can't say. But what I don't understand is what world he has been living in: that is so different from mine.

Everywhere I have turned in computing there have been women beavering away, certainly far more than in other branches of engineering that tend to be filled with men who mis-spent their youths covered in engine oil. The chief operator I knew was a formidable blonde Cockney girl who terrified any programmer who wanted to ask for his testing to be done early.

In my travels now I meet technical women working for the systems houses, word processing managers, the British Library and the like, who have all the savoir-faire of their finger tips in a refreshing unassuming way.

Communications firm Cus is well known for the number of women it uses, particularly on the technical side of marketing.

I was in Poland on a business trip years ago with one of my managers, and at one point, our boss commented on the "stay-at-home" status of women in Britain. I was my leader (whose wife was a well known information scientist) and I said: "I'm very much the man of my house. I insist that my wife helps me with the housework."

A couple of the Poles got the joke.

One (I use the word generally to protect the innocent) was left with Posing. Presumptuous Posing. To you that media Person of Opposite Sex Sharing Living Quarters.

Chall

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, April 9, 1981

We should aim to recover UK lead

IT seems France wants to depart from its usual practice of going it alone, and is looking to speed up European agreement on standards for videotex - the generic term covering viewdata and teletext.

The managing director of the French Post Office's telecommunications authority, Gerard Théry, has called on the Germans to ensure that their two countries seize what he describes as "the best trump cards". The initiative, Théry warned, must be kept out of the hands of the US and Japan.

British Telecom has already done its fair share of initiating co-operation, most recently in satellite communications for business and in plans for linking digital networks designed to carry both voice and data - the so-called Integrated Services Digital Network concept.

Until the 1960s, Britain was a pioneer in communications in all its forms, as well as the world's leading exporter of telecommunications equipment. But we have now fallen behind to such an extent that the export target for System X is no more than 10% of the world market.

London, however, remains a major switching centre for international traffic, and British Telecom says it is committed to keeping it that way. At a seminar for BT's international customers last week, the man responsible for marketing in this area, John Jeal, said he was well aware that users could choose whether to route their traffic through London or not.

British Telecom comes with some good references. The main focus of Euronet, the EEC's packet network, is London, where the management centre and inquiry service are run on behalf of the Commission. Britain's IPSS is the first international packet switched service.

Building foundations for the future, British Telecom has re-arranged its main international network round a modern switching centre at Mndial House, and international services director Mike Morris has stressed that much of the effort made over the last year has gone into improving the quality of its services.

The drawback to this tale of foresight and fortune is BT's financial straitjacket, preventing it from spending money now on both keeping up with the quality that international customers demand and pioneering data transmission services.

Britain's telephone service is not of the best. The demand for lines in many areas far exceeds our antiquated exchange network's ability to supply. Calls for generalised counter-cyclical investment in telecommunications have been made, and British Telecom's ability to borrow has been asserted.

Mrs Thatcher is even believed to favour letting-up on her financial squeeze enough to allow the breath of private cash to blow on this state enterprise. When even the French start to make noises about co-operation in the face of US and Japanese attacks, it is time for the special field of data transmission to be given the support which allows Britain a fighting chance of getting back to the top of the telecommunications tree.

Jargon problem

LAST week in Hannover, Commodore launched itself at the general business market with a powerful micro in the Pet's box which it dubbed the micromainframe.

Last April, Intel announced the world's first 32-bit, three-chip set microprocessor, which was claimed to be as powerful as an IBM 370 mainframe computer and which was dubbed . . . micromainframe.

Before we all get in a tangle about terminology yet again, could someone decide what a micromainframe is? Pending that, we at this newspaper shall remain sternly ignorant.

1984 and all that . . .

THIS week's example of the strange things people say in the media about computers was sent in by A. J. Hilton of Usbridge, who writes:

Computers can drive a wedge through a happy home and destroy a marriage.

That's the view of David Tabbutt, editor of Personal Computer World.

"Computers work like the highest rate of divorce," he says. "You can actually fall in love with a computer; they are phenomenally powerful machines and they obey you utterly." And when a computer dies, you have to expect the same intensity from the family as from his beloved all-time ally, the car.

Usbridge and Hillington Gazette

LETTERS

Men should push for equality

SURELY Alan Simpson's Focus article (CW, March 26) misses the fundamental point about equality for women. This is the notion that for women to be equal, men must also be equal. It is grossly unfair to criticise women for their concern over domestic affairs, or their reluctance to stay late for ritual drinks. In most cases they need to do the "Tesco branch sub-routine," or rush home, because their husbands are doing the ritual drinking, or would not dream of using their lunch hour for a supermarket trip.

Working women frequently do most of the household work (shopping, cooking, cleaning, washing) all of which are regular if not daily tasks. These are usually not balanced by less regular masculine preserves such as DIY and car maintenance, especially when these are confined to weekends.

For women to be "equal" they must either work twice as hard as a man, have a liberated husband or stay single. I have worked with dedicated women computing professionals who exemplify each of these three approaches, and none of whom were less valuable at work for being female.

Equally, as a man who would like the opportunity to do more than pay lip-service to these principles, I resent the implication that it is normal and necessary for men to work beyond usual hours, especially where ritual drinking is concerned. Of course one expects the occasional emergency or the last-week panic before a new system is implemented. That is the name of the game. Anything more than that is, in my bitter 3 months of 60-hour-week experience, due to poor scheduling, lack of project control, insufficient allocation of resources and rank bad management.

As an applicant to join the human race I expect the right to see my children seven days a week, not two; the right to place my family life

above ritual drinks after work; the right to get straight home from work if my wife has to work late and equality with my wife in consideration of the need to be home if a child is sick.

For equality to be achieved, men must change too. Simpson implies the need for women to adapt to old-style, predominantly male-oriented work patterns in order to open doors. Perhaps we men should stop leaning against the inside of standing idly by. Perhaps we should start pushing too.

PAUL MASSEY
Bishopston, Bristol.

Caught in a vicious circle

IT IS difficult to refute Alan Simpson's arguments, not because I feel they are justified, but because I feel they suffer from the weaknesses so often attributed to women: illogicality, incoherence and concentration on the particular - keep-fit classes and laundromats, indeed! Instead, let me suggest some of the root causes why women do not flourish higher up the computing tree.

Society in the UK still revolves around the assumptions that it is the woman's job to run the home and a mother's duty to devote her time to bringing up her children. If Simpson or his ilk considered offering to take turns with a working wife/girlfriend in organising the evening meal, their after-work drinking companions would

probably shake their heads at such evidence of hen-pecking.

It is practically unknown for employers to offer nursery facilities for the children of staff, even when those staff, such as teachers and nurses, are essential to the wellbeing of the society they serve. Companies therefore see the hiring of a woman as carrying the risk that she will leave for domestic reasons.

The result is that women are likely to find themselves a minority group in any area of work where an unbroken career is desirable. As with many minority groups, the effort needed to advance is often greater than for members of the majority: they have to excel in order to obtain an

average success. And woe betide them if they fail! That failure is added to the catalogue of reasons why, of course, they are a minority and deserve to remain so in the eyes of the majority.

There is no easy way out of this vicious circle, which perhaps explains why separatist all-female groups are beginning to burgeon. I don't believe they are the answer to the problem, but at least they allow a number of people to benefit from wider experience and greater responsibility than they may be accorded in a conventional computing environment.

ALISON BYE
Director
Amicus Systems Ltd,
London WC1.

The old argument goes on

I HAD hoped that by now the DP industry had realised that men and women are equally intelligent beings, but it would appear that the old argument still lingers on.

As Alan Simpson rightly states, increasing numbers of women are enrolling on computer courses. Those students who are successful in obtaining diplomas and degrees in computing deserve an equal chance of climbing the

DP management tree, and it is essential that such students receive a sound instruction in all aspects of management, and its associated responsibilities.

It is then up to the DP industry to ensure that its employees carry out their various tasks correctly - irrespective of whether these employees are male or female.

It is the attitude of the "old-type" male chauvinist DPM which

is so hard to overcome. The type of man who doesn't want a woman joining the team in case she proves too intelligent and who thinks that all women (except his punch operators) should be at home minding the children. Thankfully, this breed of DPM will eventually become extinct.

EDITH FARRAR
Garforth,
Leeds.

Not much chance of promotion

ALAN Simpson concedes that "doors will have to be opened for women in computing" - yet at the same time he attempts to close them, by perpetuating the myth that women always put domestic obligations before their occupations.

We can obviously only write from our own experience, that of a handful of women programmers in a large male-dominated programming department. None of us ever feel the need or desire to interrupt our work and suddenly rush off to do the washing, queue at the supermarkets, etc. Why should we? Supermarkets often stay open late.

as do laundrettes. Boyfriends and husbands have been known to share domestic chores.

Although we are not averse to lunchtime visits to the pub (far from it), in comparison with our male colleagues, our lunchtimes are considerably shorter. Surely ours is not the only department where men leave early to collect "cars, decorate, meet girlfriends etc?"

From reading this, a great many males might smile and say: "So what are they getting so annoyed about?" Unfortunately, the problem remains the same. At present,

the women programmers in our company stand little chance of promotion at the same rate as their male counterparts.

However much women's actions belie the clichés and myths, these attitudes, as expressed by

Simpson, will continue to flourish, as long as people like him expound them.

J. BARRETT, ZULDA SILVER,
JULIE BELL, JANET DUNLOP
Romford, Essex.

Bugs in the system

I USUALLY refrain from commenting on the doings of other computer journals and those who write for them, if only to avoid boring "dog-eat-dog" episodes. But Mr Tebbutt, quoted on the facing page in 1984, has so thrilled me with his revelations that I cannot refrain myself.

The Usbridge and Hillington Gazette went on to say: "He believes that those in power regard knowledge of computers as very dangerous."

"I've been told that every computer journalist's phone is tapped," he said, "and from the trouble I have with my phone I can believe it."

Paranoid Fame at last for little

I'VE been trying to resist the urge to congratulate the designers of the census form for managing to make an eight-page folder appear as difficult to fill in as they did. And I shall manfully struggle to do so.

The people who cannot be exempt from the "order of the dumb terminal", however, are those responsible for the questions. Let's leave aside the classification

old me! And after all these years I have been thinking I am an insignificant nobody, turns out that M15 have been taking a personal interest in me! Every time I ring up the builder to complain about my leaking roof or try to get on to British Rail to find the time of the next train to Huddersfield, there the spooks are, hanging on to my every syllable.

I must also be in their databank of subversives. No wonder they don't want any data collection on their files. If I were in M15, I'd be a butcher's shop. I could find all the details of my every trip to the laundrette, easily cross-correlated with similar trips by other computer journalists, so they can speak out recklessly for "shopping vital

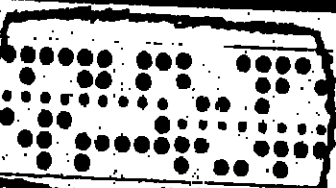
"knowledge of computers" such as how you delete single characters on CPM.

Remember that all you lot have this dangerous knowledge too, even if you are not in the exalted band of computer journalists. So watch out for the M15 men on your tail. Of course it seems these days that virtually all M15 men are in reality KGB agents, so what they are actually doing in following us is a bit confusing to work out.

There are some long-haired Tebbutts in the area. What use is giving a phone if in the process you stop it functioning? As I once remarked: "The thing about having your phone tapped is that you know it's working."

boards, housekeeper, friend, former lover, child, explains the form.

Whatever they are expected to say? If the good man or woman you submit under the same roof could not be classified as a housekeeper or boarder, then what's their close to be dismissed as flatmate or (read, that what you want to be) Cohabitee? Soundly, too



Way-out way in

I AM a little worried about the future of business efficiency in Northern Ireland, John Fraser of Ulster Polytechnic has sent me an admission ticket to a Business Efficiency Exhibition in Belfast (run by a local firm, not BETA). The exhibition is supposed to be the ticket to a prosperous future. I don't know how many of you remember paper tape but if you use this sort of Ulster the sprocket holes are going to cause the tape reader plenty of confusion!

MY friend Alan Simpson, whose words of wisdom appear above, hasn't half brought down the wrath of the furies on himself for his remarks the other week about women in computing. We are investing in another ton of newspaper to print all the letters. Whether he was being a sexist swine in saying many women are not committed to the career, I can't say. But what I don't understand is what world he has been living in: that is so different from mine.

Everywhere I have turned in computing there have been women beavering away, certainly far more than in other branches of engineering that tend to be filled with men who mis-spent their youths covered in engine oil. The chief operator I knew was a formidable blonde Cockney girl who terrified any programmer who wanted to ask for his testing to be done early.

In my travels now I meet technical women working for the systems houses, word processing managers, the British Library and the like, who have all the savoir-faire of their finger tips in a refreshing unassuming way.

Communications firm Cus is well known for the number of women it uses, particularly on the technical side of marketing.

I was in Poland on a business trip years ago with one of my managers, and at one point, our boss commented on the "stay-at-home" status of women in Britain. I was my leader (whose wife was a well known information scientist) and I said: "I'm very much the man of my house. I insist that my wife helps me with the housework."

A couple of the Poles got the joke.

One (I use the word generally to protect the innocent) was left with Posing. Presumptuous Posing. To you that media Person of Opposite Sex Sharing Living Quarters.

Chall

Let's leave aside the classification

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Computer League ready to kick off

THE London Summer Computer League has finalised fixtures for 1981. Now in its fifth year, the league is gaining popularity with every season, with more and more teams trying to gain a place in one of the five divisions. There are six teams per division, playing full 11-a-side games on grass.

The games are played mid-week and each team has one game a fortnight. Demand has dictated that this year, divisions are split into North and South, the South playing at London Playing Fields' Raynes Park venue and the North using the same at Coppermill Lane, Walthamstow.

At the end of the season, a match will be played by the two winning teams of each division, to find the overall top teams in London. A cup is provided by Computer Weekly for the winners of Division One.

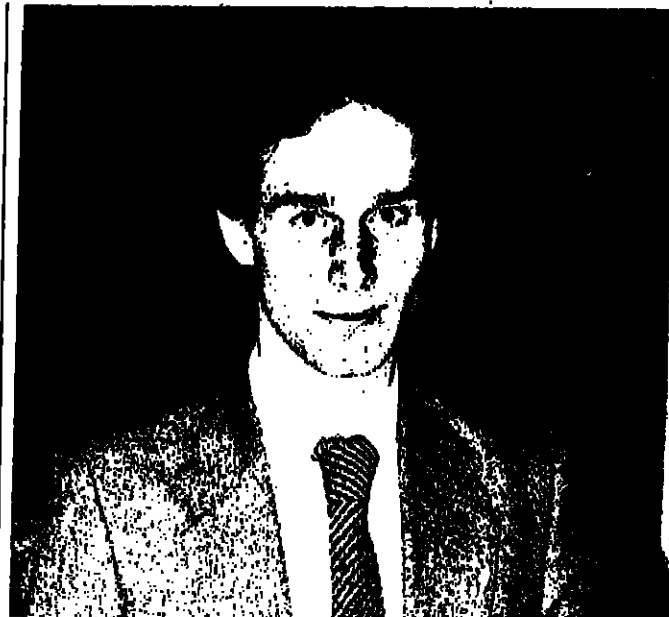
Your opportunity to put Kevin Keegan in the shade comes in the Knockout competition for the Computer Weekly Cup, where there are still some places available. Teams wishing to enter should contact Danny Boreham on 01-505 5576, as soon as possible. The Knockout Cup was played for the first time last year and attracted great support, with over 200 people attending the final. Incidentally, at the risk of sounding smug, it was won by Computer Weekly, which beat Ventek 5-0.

As if all this isn't enough, there is an annual Presentation Dance held at the end of the season, which usually takes the form of a disco on a boat on the Thames.

Ted Semp has been appointed sales executive covering the North and North Wales at SEL Computers. He was previously sales executive in the scientific and technical division at British Olivetti. Also joining SEL is Anne Watson, who becomes support analyst at

the company's Northern headquarters. She was previously a consultant with IAL Gemini.

Ray Jose has joined Harris Information Systems as senior sales executive. He was formerly with Data 100.



ANDREW COUSENS is the first student to graduate from Honeywell's new programmer training course which is operated under the Manpower Services Commission's computer training grant scheme. Cousens, who works for the Services Kinema Corp, studied Honeywell Level 6 Cobol programming.

The MSC's grant scheme is available to employers in selected areas of industry and commerce who are prepared to train more people in a new basic computer programming course.

The Honeywell BDP Education Plan Service is run by the company's marketing education department and combines short courses and workshop sessions at its training centre in Hammersmith, with supervised projects at the trainee's own offices. A course normally lasts between 12 and 18 weeks and covers the National Computing Centre/Guilds of London Institute "746" basic certificate in computer programming.

Reshuffle at Amdahl

FORMER managing director of Amdahl UK and general manager of the company's Northern European operation, Peter Williams, has been promoted to general manager of Amdahl European operations.

Terry Pasola succeeds Peter Williams. He was previously marketing director for Northern Europe.

Alan Bell, formerly regional support manager for the company's Region One, (UK, Scandinavia, Belgium and the Netherlands) has been named director of products support and services for Europe.

Reporting to Bell is Brian Wilson, who is manager of the company's European Systems Support Centre.

Amdahl European Headquarters will be in London, and those reporting to Williams in addition to Pasola and Bell will be Carl Smarling (Germany and Switzerland), Phil Lemay (France and Italy), Jim Comolot (Spain and Portugal), Simon Auld (Austria and Germany), and Robert May (UK and Ireland) - a wholly-owned subsidiary of Amdahl.

Personnel changes have also been made in Amdahl's sales and marketing departments. David Wildman, who was the company's senior manager of the marketing team in 1979, has been appointed UK sales manager.

Linda Ory has joined TSB Computer Supplies as director of North American daisywheel operations. She previously spent nine years with IBM.

Robert Gray has left Logica, where he headed sales at the company's system engineering division, to join MMG Associates as UK sales manager.

Graham Griffiths has been appointed managing director of CT Computer Services. He was previously a consultant with Touche.

DIARY

APRIL 13
AGM and dinner, followed by human factors of computing. BCS Cheltenham and Glos branch, Bisto 41, High Street, Cheltenham. Tickets: D. Went on Glos 416301 ext 225.

System X telephone exchange. BCS Glasgow branch, The Music Room, Staff Club, University of Strathclyde.

APRIL 14
Does the Chip Mean the Chop? BCS Merseyside branch, Faculty of Science Lecture Theatre, Liverpool University, 6.00.

Effective costing in computer installations. IDPM Hull branch, Hull Crest Hotel, Ferryway High Road, North Ferry, Hull. Tickets: 8.00.

APRIL 14-16
Second London Computer Club Association of London Computer Clubs, North London, Polytechnic, Details 01-607 2789.

APRIL 15
Training for DP management. IDPM Central London branch, Pearl and Dean Studios, Broad Street, London W1. 7.30.

Information processing. BCS Manchester branch, ICL Amdahl Centre, Manchester, 6.15.

Computer display systems. BCS Croydon branch, Maple Room, Fairfield Halls, Croydon, 7.15.

Joint meeting between BCS FACS Group and IMA Mathematics.

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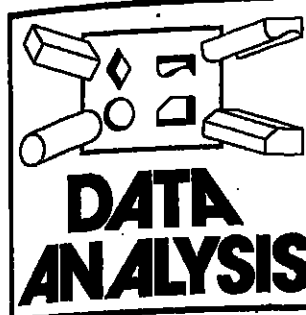
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Repository of data-about-data is a potentially powerful tool

Section II - Part 5

of our series describing a system design methodology

by Rosemary Rock-Evans

So much has been written and said about the data dictionary that it may seem pointless to have yet another article emphasising its importance to the management services function (data processing, O&M, etc).

A data dictionary is important, however. It is the management services' own database system and has such potential as a means of automating the functions within management services and as a provider of information, that one can scarcely be in danger of over-selling it.

One definition of a data dictionary is as "a repository of data about data" (James Martin, principle of DB Management). "Data about data" is sometimes known as "meta-data".

Although this is a neat definition, it tends to hide the extent of the influence a data dictionary should have within management services. A data dictionary is, in fact, a model of the management services environment, which automates some of the functions of management services.

Thus, for example, if we examine the entity types of the management services environment we will identify:

Designer - record types, systems/applications, files;
Programmer - programs/modules/subroutines, jobs;
Analyst - attribute types, entity types, events, functions, relationship types, etc.

If we also examined the functions of management services we would see:

Analyst - functional decomposition, entity analysis, access path analysis, entity life cycle analysis;
Designer - record design, linkage design, transaction design, program design;
Programmer - program writing, job writing, producing test data, testing programs.

If we look at data dictionaries in this way, we can see that the resulting DD database and system could be as complex and large as any system we might write for a user and that, potentially, a data dictionary is a powerful tool.

There is not a single management services function that could not either be automated or be assisted by the provision of information which would take the drudgery out of the function.

The DP department thinking of using a data dictionary is faced with three alternatives: a totally manual DDS, a package or a DDS developed on-site.

It should be obvious, from the previous paragraph, why a totally manual data dictionary is impractical for all but the smallest DP departments. Unfortunately, the department is then left with two alternatives - to write their own, or to buy a package.

The development effort required to write a good data dictionary is much the same as that required to write any large database system. In other words, we are talking about man-years of effort rather than man-weeks. Not many DP departments can justify this development effort.

We are then left with the package. Until now, most packages have concentrated almost exclusively on the functions and data required for program support.

Analysis is, yet again, a neglected area, as are hardware planning, software evaluation, and hardware operation related functions (e.g. backup tape libraries, disc libraries, monitoring hardware usage, etc).

The package designers have concentrated, for obvious commercial reasons, on an area which is a problem at present and which DP departments themselves recognise as an area for automation.

Consequently, the data dictionary, as we know it, is a potentially powerful tool.

I would not like the reader to assume that all packages offer only this limited support. There are a few notable exceptions, such as ICL's 2900 data dictionary system, which does support the analysis functions. Some other package vendors are beginning to develop their dictionary packages to include the additional functions required.

At present, however, the analyst is usually faced with having to adapt the package (i.e. use it in a way which was not intended) in order to obtain any mechanised support for the analysis function.

In Figure 1, a much simplified entity model of the management services function has been drawn, to show the scope and complexity of the environment the data dictionary should be attempting to map.

Note that many entity types and relationship types have been omitted for simplicity's sake.

It is worth "walking through" the model to understand what the entity types and relationship types are describing.

Repository of data-about-data is a potentially powerful tool

Section II - Part 5

of our series describing a system design methodology

by Rosemary Rock-Evans

puter jobs (collections of programs in a predefined order).

The mechanised attribute types are called data items. They result from mapping the attribute types to the record types. Note that there can be more than one data item for any attribute type.

The data items are treated, accessed and stored together as one unit which is known as a record type. Note that we can include within this definition source documents, a line of computer printout, forms, or transaction types, and that record type within DBMSs goes by other names, e.g. segment type. The record types are themselves treated and stored together as one unit and this is known as a file. Again, this includes report files and manual files.

Just as we held information on a function's use of an element at the analysis stage, it is also useful to hold information on a mechanised function's use of the mechanised elements. In this category there is the item usage sub-type, record usage and so on. Questions such as "If I change the permissible attribute values of an attribute type, which programs will it affect?" can all be derived using this structure.

One interesting extra relationship type is shown between user and mechanised function, and describes which job is responsible for performing these clerical/manual tasks when implemented.

The part of the model marked "Implementation" describes how the mechanised functions and elements are implemented using the hardware, or in manual terms actual filing cabinets, etc. A file "Employee record file", could be implemented (as part of the implementation of the system) on several disc packs.

If a system is only implemented once, obviously this relationship between physical mechanism occurrences, i.e. actual discs, magnetic tapes, etc., and mechanised elements or functions is one to one, but where there is more than one implementation the relationship is many to many.

Having looked at the model of the DP environment, we can now turn our attention to the functions. It would be impossible to list all the functions which could be handled by a data dictionary, there are too many. Some functions have therefore been picked out, which have not often been covered by previous articles on data dictionary.

System conversion: By documenting the old system and the new system and the relationship between the elements of the two, the data dictionary could control the conversion.

Validation: All basic validation on transactions could be done via a generalised program, as the format, valid values, etc for each data item within a transaction type are known.

Distributed processing mapping tool: The dictionary could hold details of each of the distributed

systems (and their data) and use the overall entity model as the conversion factor.

Program writing: Automatic report generation - since a dictionary knows where data is to be found, and how it is related, it can be the foundation of a generalised inquiry system.

Documentation: It is worth mentioning that practically all documentation could be produced from a data dictionary, e.g. record layouts, report layouts, etc.

Sub-schemas and schema generation.

Database design: The data dictionary cannot yet perform the functions, but as has been seen in earlier articles, it can provide the information needed for database design.

Hardware planning: Estimating the cost of and activity on types of equipment (mechanisms) by analysing the possible methods of mechanising the functions.

Software evaluation: Helping with the comparison between the functions and the model required

and those supported by the application package.

Designing systems for security and audit (used as an aid by showing where redundancy and interactions are).

Generating Input/Output modules or controlling the opening, closing and accessing of files, including privacy control.

Generating JCL and test files.

Analysis: Many tasks can be aided or performed by the data dictionary, such as cluster analysis of the functions to determine the best grouping of functions into applications.

Entity type usage: For entity life cycles.

Consistency checking: Between programs and DBMS.

DBMS performance optimisation/database tuning.

Storage design: As an aid.

Operational performance evaluation: Comparing what was expected with what is being achieved.

In essence, the data dictionary should always be used as the source of data about data. For

example, programs should never have to declare code values and meanings - the information should be obtained from the data dictionary, thus ensuring the consistency of the database.

The aim of this article has not been to describe what data dictionaries do at present, but to show what data dictionaries could do and how the scope could be broadened so that they serve the management services function as a whole (i.e. organisation and planning, database design).

The data dictionary is describing one of the functions of an organisation and is no less an integral part of the business than any other function such as selling, buying, etc. In fact, it is the function upon which all the other functions in the business depend, and there should be interaction between the data dictionary and all the functions of the business.

The Data Analysis methodology was developed at GACI by Ian Palmer.

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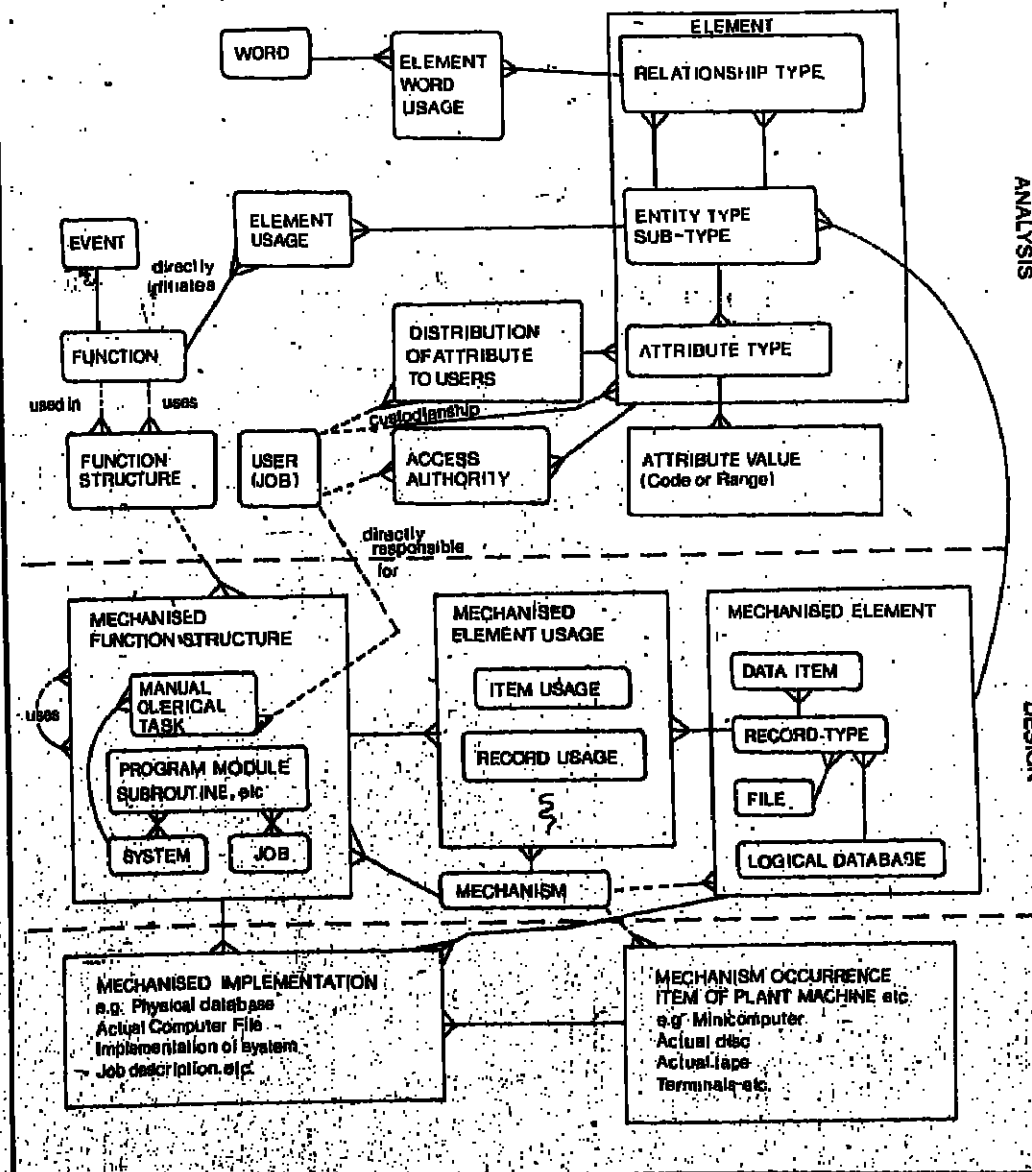


Figure 1. Simplified entity model of data processing function.

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SYSTEMS 81, to be held at the Munich Trade Fair Centre from October 19-23, will bear the imprint of increasing interpenetration of computer technology, office technology and communications technology segments of the overall information technology market. The theme of the conference is Thinking in Systems. The spread of decentralised data processing and the introduction of new information transmission services such as Videotext are a clear indication that today modern information processing is no longer feasible without sufficient knowledge of the application possibilities offered by telecommunication. The conference will go into the development of applications and possibilities of telecommunication in depth. Details from Muehener Messegesellschaft, Messeplatz, Postfach 12 10 00, D-8000 Muenchen 12.

Finniston Report

SIR Monty Finniston, ex-head of British Steel, will address the London branch of the BCS at a meeting on April 23, to be held at the Waldorf Hotel, Aldwych, at 6.30. The event is a joint meeting with the Institute of Management Services and the subject of Sir Monty's speech will be The Finniston Report.

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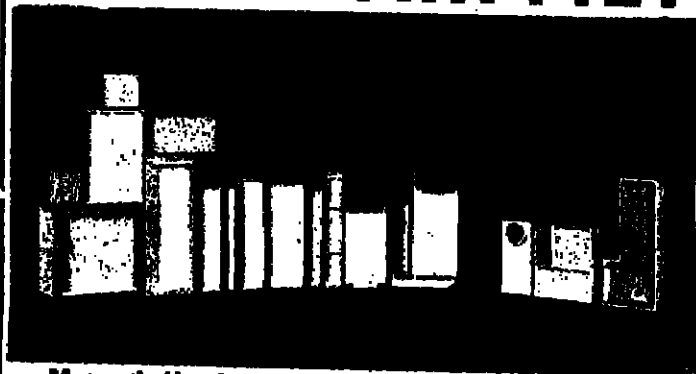
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DL11I 4-bit system unit £150.00
DL11J 4-bit system unit £150.00
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DL11M 4-bit system unit £150.00
DL11N 4-bit system unit £150.00
DL11O 4-bit system unit £150.00
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DL11Q 4-bit system unit £150.00
DL11R 4-bit system unit £150.00
DL11S 4-bit system unit £150.00
DL11T 4-bit system unit £150.00
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DP8P 8-bit system unit £125.00
DP8Q 8-bit system unit



VT 103 terminal with speedy access time

RAPID Recall is introducing the VT 103 microcomputer terminal as a complete microprocessor unit for use either as a local distributed network processor or as a stand-alone system.

The VT 103 comprises a CRT monitor, detachable alpha numeric keyboard plus separate numeric keypad and an LSI-11 backplane providing slots for up to eight plug-in boards.

Designed by Digital Equipment Corporation (DEC), it is available in the VT 103-AA and VT 103-BA versions, the latter incorporating two TU 58 mini cassette drives and their associated read/write control logic providing mass terminal storage facilities.

Based on DEC's successful VT 100 terminal, the VT 103 CRT monitor has a 132 column by 24 line display presenting 7 x 9 dot matrix characters with true descenders and ascenders for easy reading.

Other important features include operator-selectable double height/double width characters, double density, normal and re-

verse video, blinking and variable tabulations.

The detachable keyboards has a standard QWERTY typewriter layout, with special function keys for editing and data communications. The separate 18-key numeric keypad speeds the numerical data entry.

The VT 103 includes an internal power supply for the LSI-11 backplane assembly and a cooling fan. Provision is made on the backplane for +5V and +12V dc battery back up power supplies to be connected.

Rapid Recall says that a complete and powerful microcomputer system can be configured using the VT 103 by plugging in LSI central processor, memory and serial line interface or multifunction modules.

A comprehensive system can be built up from standard products to suit individual applications, says the company. Rapid Recall can supply all necessary hardware. The factory-installed TU 58 tape drive on the VT 103-BA is a

tape cartridge mass storage system that will handle up to two drives of 256 K bytes each. It communicates with the processor via a standard serial port at speeds of between 150 and 38.4K baud.

Main advantage of the unit is that Rapid claims it provides bulk storage and fast access at reasonable prices.

The unit employs an internal microprocessor enabling information to be stored and retrieved.

Average access time is 9.3 seconds and blocks can be erased and rewritten without disturbing adjacent blocks as they are of uniform size.

The VT 103 can be employed as a simple terminal, a general purpose microcomputer with integral mass storage capability or an intelligent terminal with a free explanatory brochure available from Rapid Recall.

Rapid Recall Ltd (CW), Rapid House, Denmark Street, High Wycombe, Bucks HP11 2ER. Tel: 0494 26271.

EPROM eraser package

MICROSYSTEMS Services of High Wycombe has introduced the Model EP-10 low cost unit to its range of EPROM erasers, directed towards hobbyists, programme of products requiring a relatively small number of EPROMs and equipment manufacturers interested in large numbers of single erasing units.

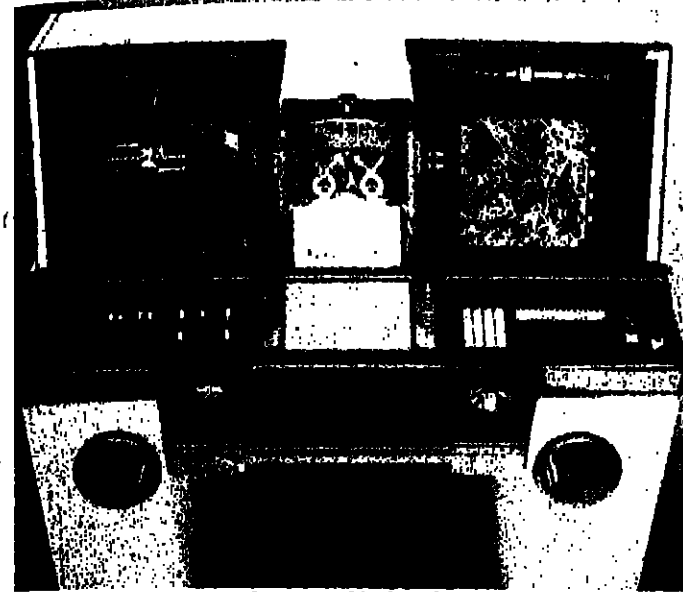
EP-10 is said to erase up to ten 24 to 28 pin EPROMs at a time in a radiation drawer is arranged so that a high-intensity UV lamp irradiates at ten micro-memories with the same energy and the entire unit weighs only four kilograms.

A built-in lamp shows when power has been turned on and a safety interlock shuts off the ultraviolet source when the drawer is opened.

Normal operational voltage is 230V 50 Hz with optional 110V 60 Hz and tube life rated at 2,000 hours.

Microsystems Services (CW), 11 Duke Street, High Wycombe, Bucks HP13 6BE. Tel: 0494 41661.

PRODUCTS - 2



Kern DSR 1 has a range of cartographical applications.

Televideo VDU on offer

BELPER (Derbyshire)-based systems and terminals house Mid-electron has added the Televideo TVI 950 to its extensive VDU range.

TVI 950 retains all the 920C model features with the addition of 11 user-programmable function keys, advanced editing with wrap-around, split screen with line lock and selectable smooth scrolling.

It also includes a 25th status line for continuous display of terminal configuration and 15 special characters for powerful line graphics.

With its detachable keyboard and tiltable non-glare screen, the TVI 950 may appeal to all operators and has the option of up to four pages of memory.

Mid-electron Ltd (CW), Mid-electron House, Nottingham Road, Belper, Derbyshire. Tel: 077-382 6811.

Kern stereoplotter has map-making potential

APPLYING microelectronics to cartographic problems has led to a Kern stereoplotter carrying out all the functions of a conventional first order stereoplotter and incorporating many additional features said to be unavailable on other manufacturers' instruments.

The Kern DSR 1 system can handle a wide variety of inputs.

Unlike many other first order machines, the DSR 1 system is said to accept many different formats including satellite photographs like Skylab 46 x 23 cms format.

An integral microprocessor compensates for wide scale differences between two given pictures in a stereo pair and also corrects yaw and skew variations between pictures due to attitude or positional differences in the aircraft taking the photographs.

Although microprocessors are used extensively in the stereoplotter, the DSR 1 system is also compatible with a powerful Digital Equipment PDP-11 series minicomputer.

Using Digital's powerful Unibus data highway, the stereoplotter can

be linked to the DSR 1 cartographic digitising system.

DSR 1 users will also have access to conventional DP peripherals via Unibus, including mass storage, plotters, printers and other input output devices.

Laser point marker facilities are said to help the user make indelible marks on the surface of photographic emulsions, enabling the operator to make tie and pass points on the stereo model.

This is useful when carrying out aerotriangulation in areas such as deserts which are devoid of useful physical features on the surface.

There are three separate computer processing centres within the DSR 1. The P1 interfaces with the operator via the console during on-line operation and helps to process application programs.

P2 also communicates with processor P2, sending data to an external PDP-11 series computer or a standalone graphics peripheral.

P2 deals with the data transformation process from information fed to the instrument by the operator via P1 and accommodates

earth curvature, atmospheric refraction and lens distortion automatically.

It implements repositioning instructions from the operator, transmitting positional co-ordinates and step-by-step setting up and operating instructions to the operator via P1.

P3 provides information to the operator in an operator-compatible form and acts as a prompter, making sure the operator does not miss out vital information needed for a particular application program.

It accepts and interprets operator commands, displaying data on a VDU and interfaces directly with processor P1.

The Kern DSR 1 is claimed as one of the most cost-effective stereoplotting systems on the market, its £47,500 price - including external PDP-11 computer - being in line with older first order analogue machines.

Survey and General Instruments Ltd (CW), Technical Instrument Division, Firecroft Way, Edenbridge, Kent TN8 6HA. Tel: 0732 864111.

Keeping disc flow moving

ARROW Computer Systems has announced the UK release of Minicomputer Technology's latest emulating disc controller for the DEC PDP-11.

Designed the EDC21, the controller emulates the DEH RH11 connected to multiple RM02/03/05 drives and runs under current revisions of RSTS/E, RSX-11M and RT-11 without software modification.

The EDC 21 will handle up to four drives, including Winchester types, in the cartridge module, storage module, fixed module and minimodule categories.

Any combination of drive capacities (e.g. 80, 160, 300 and 600Mbytes/drive) and most combinations of drive categories can be supported on a single controller.

The EDC21 has dual access capability as standard allowing two CPUs to share a common database on dual ported drives.

The single unit price is £2,500. Arrow Computer Systems (CW), Rosemount Tower, Stafford Road, Wallington, Surrey SM6 8RW. Tel: 01-647 0962.

Providing a good atmosphere

WHAT is claimed as the latest in environmental engineering technology has been incorporated in the Compac 81 range of close control air conditioning equipment.

The development comes from Wright Air Conditioning of Birmingham, which specialises in the environmental requirements of computer users and production of the range has begun already.

Wright hopes to contain production costs through a manufacturing process study, an important achievement in the light of current inflationary trends.

The company's design and development team has produced its own Wactronic one-board electronic controller with in-built memory system including a recycle to zero to prevent maximum power demand on start-up.

Compac 81 provides a supply air temperature of 60 degrees Fahrenheit (15 degrees Centigrade) to the underfloor void. This feature eliminates cold draughts at floor level and reduces the possibility of thermal shock to the computer.

Wright claims the sensible heat ratio to be upwards of 0.99, increasing cost effectiveness and running costs per ton of refrigeration delivered.

Introducing a solenoid valve is said to offer a new coil characteristic providing a lower sensible heat ratio when the dehumidification

cycle is required, which minimises re-heat requirements in turn.

The humidifier tank has hot and cold sections to meet local water authority requirements and cold water supply to the tank is controlled by a solenoid valve offering conservation benefit.

The tank incorporates a timed flushing facility enabling it to be cleaned at regular intervals, particularly important when dealing with hard water.

Compac 81 has a capillary fed evaporator which eliminates the need for expansion valves and reduces setting up time and maintenance.

The floor supply range will comprise six models, the smallest being the F86 with a total cooling capacity of 63,000 British Thermal Units per hour to the FS 21 (252,000 B.T.U./hr). Room Supply (RS) equivalents will be introduced this autumn.

Compac 81 is produced as standard in direct expansion (DX) versions, four options being available on request. The options are low pressure hot water heating coils as alternatives to electric water heaters, chilled water units, in-built water cooled units and glycol economy cooling coil.

Wright Air Conditioning Ltd (CW), Sampson Road North, Camp Hill, Birmingham B11 1BL. Tel: 021-773 8421.

Multi-terminal system

OLIVETTI has introduced the TC 1800 multi-terminal concentrator system aimed at the distributed user. The TC 1800 is an open-ended product said to offer clustered system flexibility, more workstations, ergonomically designed keyboards and VDUs.

The TC 1800 has been developed from the earlier TC 800 to



Olivetti TC 1800 has open-ended function.

give improved performance based on contemporary technology. It comprises two basic keyboard and visual display modules to which may be added printers and floppy disc unit peripherals for autonomous operation.

There is a wide range of specialised terminals, each catering to a specific user requirement.

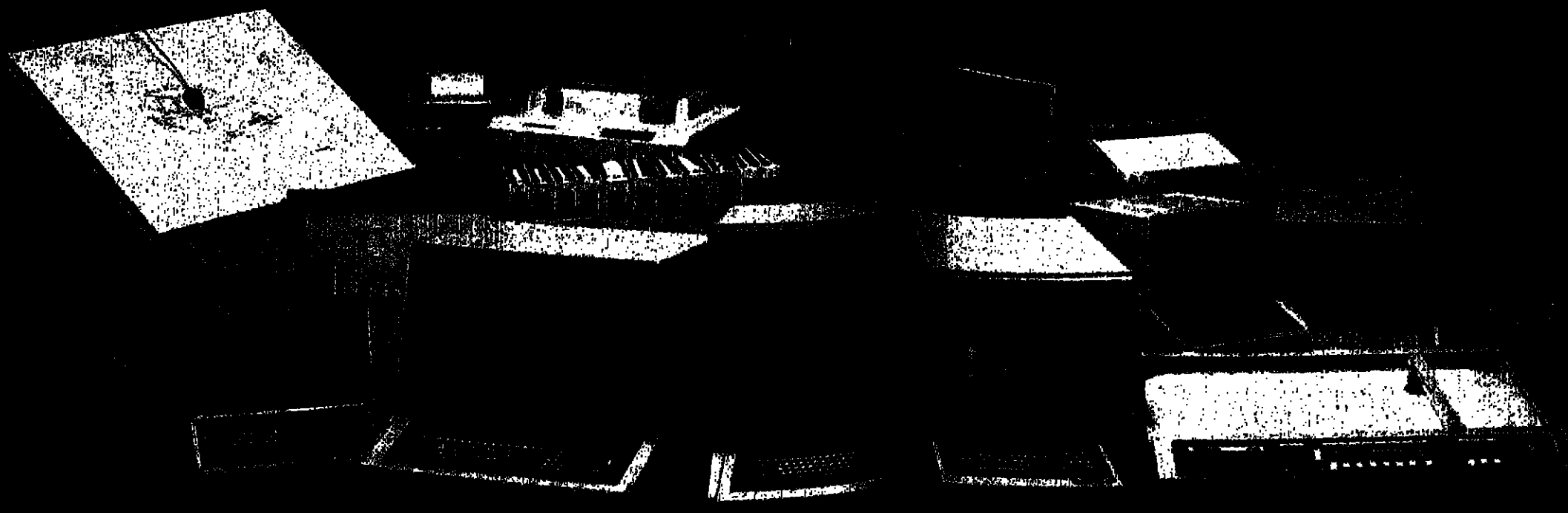
For instance, the TC 1800 has been ordered by some banks and finance houses; workstations may be adapted for use at bank counters, incorporating badge/credit card readers and PIN pads for example.

The TC 1800 is flexible, allowing different components to be added, modular enabling units to be placed anywhere in relation to each other and ergonomic.

The system may also operate with Olivetti systems such as the ATS automatic teller.

British Olivetti Ltd (CW), 30 Berkeley Square, London W1. Tel: 01-675 8807.

The Graphic Standard



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IBM all set for PoS revolution

THE GENERAL Systems Division of IBM UK has announced a forthcoming 5265 point-of-sale terminal providing up to a fourfold increase in memory capacity besides the Diskette 2D (.98 mb) announced already.

The 5265 will be available from October and is part of the IBM 5260 Retail System usable by retail stores to register, capture, monitor and track sales information. Terminals can transmit sales and other information to a computer to generate retail management reports.

With increased memory capacity of up to 128K-bytes, the 5265 models enable more price and credit information to be stored in each terminal, allowing retailers to implement faster and more efficient register operations.

Using a six digit item code, maximum storage is said to allow sales staff to retrieve automatically selling prices of 16,000 items or

check credit status on up to 24,000 six digit account numbers.

Communications capabilities will allow retailers to update information stored in the new models from a central location.

Changes to price and credit files can be created at a central computer site, then transmitted via telephone lines to unattended IBM 5265 branch store terminals.

File changes and message printing can be initiated automatically - again with the 5265 terminal operating unattended.

Existing IBM 5265 models can be upgraded to include all the new functions and purchase prices for the new models range from £3,152 to £4,281, with monthly lease/rental charges ranging from approximately £135 exclusive of VAT.

IBM UK Ltd (CW), PO Box 32, Alconon Link, Basingstoke, Hants RG21 1BJ Tel: 0256 56144.

Floating point processor raises Eclipse potential

A FLOATING point processor (FPP) said to make the Eclipse MV/8000 computer the fastest 32-bit virtual memory machine is being marketed by Data General.

Floating point instruction formats for the FPP are identical to the previous Eclipse MV/8000 microcode formats resulting in total user transparency to floating point implementations.

Programs written earlier for the MV/8000 system will run without modification using the FPP. Users with installed 8000 systems can upgrade their configurations to include an FPP and because the

processor is user-transparent, no reprogramming is necessary.

In the event of a problem, microcode instructions that the non-FPP instruction set can be booted into the system so that operations can continue in a slower mode, but with no downtime.

This is claimed as unique to Data General because the Eclipse MV/8000 is described as the only 32-bit mini-mainframe with RAM-based microcode.

Data General Marketing Communications (CW), 724-734 London Road, Hounslow, Middlesex TW3 1PD.

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Reporting to the Managing Director of a major international organisation, this position offers variety, challenge and a positive career move to the successful applicant.

Willing to accept responsibility for an independent cost centre, candidates are most likely to be working in the operations department of an IBM DOS/VS (or DOS/VSE) installation and will possess an in-depth knowledge of the operating system along with its associated software. Systems programming involvement would be an advantage but the ability to manage and promote the activities of the section is of prime importance. The areas of involvement will encompass:

- ★ TECHNICAL SUPPORT MANAGEMENT ★
- ★ CUSTOMER LIAISON ★
- ★ PROGRESSIVE ENVIRONMENT ★

Servicing clients throughout Europe, this position requires someone with drive and initiative and it will provide every opportunity for further career advancement.

Ref: S1/0904

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours

DATA PROCESSING MANAGER

LONDON

£10,000 + Car

Our client, a successful and expanding service company, have achieved market leadership through applying DP solutions to their day-to-day problems in a creative and unique style.

As a member of the management team - responsible for all DP activities, the DP Manager is expected to contribute his or her expertise to the overall development of the Company.

Ideally experienced will include: at least three years of the ICL 2903/4 range; supervisory or management responsibility. Age is less important than evidence of a high level of intelligence; well-developed communication skills; the capacity to learn rapidly; a heightened commercial awareness and above all the capacity to work in a practical manner within constant time pressures to exacting standards.

The rewards are excellent, not least the opportunity to become involved in many aspects of the company's business.

Please write with full details of your career to date and quoting reference no. 105/282 to Gavin C. Adam, Director.

Professional Personnel Consultants Limited
Orchard House, 1 Orchard Lane, Huntingdon, Cambs.
Telephone: Huntingdon (0450) 56335/56334

"an equal opportunity vacancy"

Computer Services Officer £10,092 - £12,736 p.a. Based Aberdeen.

Aberdeen is a city with its own cultural life, and exceptional leisure environment. Academic life centres around the famous university. Restaurants, shops, libraries, theatres and sporting facilities abound. The Health Service in Aberdeen is probably one of the most advanced in the country and currently has a vacancy for a Computer Services Officer.

Based at the Grampian Computing Centre, the person appointed will be chief adviser on the use of computers and will be the administrative and technical head of all data processing activities. Should discussions currently taking place with neighbouring Health Boards lead to the establishment of a Northern Computer Consortium, the successful candidate will assume the role of Computer Consortium Manager.

Applicants should have extensive experience of computing in sizeable installations, along with the ability to control systems design, programming and operating staff. Knowledge and experience of data base management, financial and budgetary systems are desirable requirements. Knowledge and experience of the Health Service would also be a considerable advantage.

The salary for this appointment is on a scale of £10,092 rising by 5 increments to £12,736 per annum. Additional benefits include a 37 hour week, sick pay and superannuation schemes, 5 weeks plus 10 days statutory annual leave, a pleasant working environment and assistance with relocation expenses, if applicable.

Forms of application and job description may be obtained from the Area Personnel Officer, Grampian Health Board, 1 Albany Place, Aberdeen. Tel. 0224 29801, with whom completed applications must be lodged by 31st May 1981.

GHB

Grampian Health Board

Always time for you

مكتبة ابن خلدون

MYRIAD

Your future in Hampshire



The company's head office is situated in North Hampshire and is well served by public transport to surrounding towns and villages and also enjoys fast road and rail links to Central London and the South Coast. Apart from working in modern offices, and benefiting from comprehensive employment conditions, GENEROUS RELOCATION ASSISTANCE is provided to an area where housing is attractively priced.

Ref: RS1/0903

Our client is one of Europe's largest manufacturers of agricultural feedstuffs, and market a range of products which have earned a high reputation amongst all types of livestock farmer.

The company's commitment to Data Processing is reflected by an impressive range of hardware to complement their sophisticated business systems. Utilising Intel AS/5 (IBM 370 plug-compatible) mainframe facilities, together with PDP 11-70, two PDP 11/34s and twenty Ventek Datapoint minis is enabling them to pursue a policy of distributed processing and this has created two interesting opportunities for computer professionals wishing to further their career in a dynamic environment.

DISTRIBUTED PROCESSING SUPPORT PROGRAMMER

to £7500

Centred around a national network of Ventek minicomputers, this position offers an ideal opportunity for a programmer with at least two years' experience to gain involvement in the support and development of a comprehensive factory computing system.

Candidates should ideally have experience in a minicomputer environment and will receive training in the DATABUS language where necessary. A current driving licence is also necessary.

DEVELOPMENT PROGRAMMER

to £6500

With extensive new development planned to commence shortly the successful applicant will contribute effectively to the company's computer applications.

Offering experience of COBOL, DIBOL or PL/I and an appreciation of minicomputers will enable you to be involved in the specification, design and programming of interesting applications.

JUNIOR BUSINESS ANALYSTS

CITY

£7500-£9000

A major international organisation is urgently seeking to appoint an additional two ambitious and self-motivated people following the expansion of its City office.

Applicants will be interested in business matters; keen to develop management skills in a position offering job satisfaction, high rewards and the opportunity of developing personality and expertise in the Computer industry. Dealing with people, developing relationships and understanding client requirements will be a major aspect of the work, involving communications and computing skills.

Under 27 years of age you should be well educated with either programming or analysis experience gained in a commercial environment. In addition to a confident and outwardgoing personality the ability to work on your own initiative is a key requirement and the potential to grow with the company is of prime importance.

These positions offer a first-year salary in the range £7500-£9000 and substantially higher rewards will be achievable following comprehensive training during the first year of appointment. The company offers a professional approach to computing issues resulting in a high competitive spirit and united commitment to growth.

Ref: E1/0904

UNIVAC 1100 - IBM 370 MINICOMPUTERS TECHNICAL PROGRAMMER

WEST LONDON

1½ YRS. + COBOL

TO £8000

An interesting opportunity exists for an enthusiastic programmer to join a small group engaged in a wide range of systems activities. The successful candidate will design and develop small specialist systems to run on both mainframe and minicomputers as well as providing detailed technical support to users.

This role is most likely to suit a person with eighteen months to two years' COBOL experience who is looking to move away from the routine of project development into a role where his/her talents, interests and abilities will be given ample scope to expand and where a working knowledge of a wide range of hardware and software will be rapidly gained. A current appreciation of a second language will be advantageous as would a Computer Science degree, although this is by no means essential.

Our client is a major international engineering and construction organisation based in Hammersmith. They offer excellent career prospects and benefits including free life assurance, flexi-time, paid overtime, interest-free season-ticket loans and a company pension scheme.

Ref: N1/0904

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours

Sales Management

c. £25,000

THE VALUE OF THE COMPUTER IS STILL LARGELY DEPENDENT UPON SUCH HUMAN TALENTS AS SKILL, INGENUITY AND CREATIVITY.

That is why considerable success has been achieved by the company's clearly defined sales philosophy and a support program unique within the computer services industry. With a turnover in excess of \$200m worldwide the time has come to expand the U.K. activities by creating a new operation.

You will be a goal orientated man manager with a proven sales track record in sophisticated commercial D.P. applications and also have the ability to build a successful sales and support team. The successful applicant will enjoy considerable autonomy and the position will lead to associate director level within U.K. operations.

In the first instance, telephone **MIKE LINFORD** on 01-405 0442. Or, send a brief C.V. for his attention to: High Holborn House, 49/51 Bedford Row, London WC1V 6RL.

Any approach will be treated in the strictest confidence.



Michael Page Partnership
Recruitment Consultants
London Birmingham Manchester

GERMANY

SENIOR SOFTWARE PERSONNEL

We are an established systems house specialising in the real time applications of micro and mini computers to process control, communications and terminal based systems.

Our German subsidiary was formed in 1975 and has built up a solid customer base with industrial concerns. We are increasingly taking on total responsibility for major projects and we wish to recruit additional staff capable of working at project leader level. Applicants must have several years relevant experience and a working knowledge of the German language.

Projects on which we are working, and where we have full software responsibility include:

- Monitoring and control of the runway lighting system and the total energy supplies at a major European airport
- Airport fire tracking system for a steel works involving nine linked computers
- Development of interactive colour graphics and data acquisition systems for nuclear power stations
- A micro processor driven rolling road control system for the German automobile industry

We offer competitive salaries, a generous relocation package, thirty days holiday per year, profit sharing, company car, and contributory medical insurance etc.

Interviews will be held in our London office by Neil Isenburgh.

Please apply to: Ray Steadman

DIGITAL APPLICATIONS INTERNATIONAL GmbH
Herzogsgrasse 61, 8078 Neu-Isenburg, Germany
phone no. 08102/38071

DAI

alba

Aluminium Bahrain (ALBA) is the major aluminium producer in the Arabian Gulf. Established in 1969, the company now employs some 2000 local and expatriate staff. Current major expansion creates rewarding opportunities for:

Programmers

COBOL

£ negotiable - upwards of £10,000 net of tax + substantial benefits
BAHRAIN

to make a significant contribution within a 2 year contract to the company's established central computer department. Set up in 1974, and now employing some 30 staff, the department is involved in the development of on-line systems on an IBM 4331.

Candidates should have a minimum of 3 years' COBOL experience; VSAM or CICS knowledge would be an advantage. Program development will be on-line using I.C.C.R.

Salary, at present totally tax-free and freely transferable, will be negotiable in a five-figure range.

In addition, substantial benefits include:

* 32 days annual leave plus 12 days of

Public Holidays * rent-free furnished air-conditioned bungalow * full recruitment and repatriation expenses * annual return air-fares for employee and family * assisted education for children * free medical care and life assurance.

Bahrain is a stable country with a liberal government. English is widely spoken and the company is experienced in the rapid and smooth entry of expatriate staff into the local community. Extensive sports and social facilities exist.

Please write with full details to: K.W. Rowe, Alba Smelter Services Limited, 22 Grosvenor Street, London W1X 9PE.

(5107)

Software Research and Development

We are still growing fast. Our product development plans for the 1980's call for highly-talented software designers, particularly with structured design experience.

We are at the forefront of product development in the fields of networking, advanced communications, transaction processing, database, information processing, software technology and system recovery techniques.

We would be pleased to hear from the following experienced people:

SYSTEMS PROGRAMMERS
c. £9,000 p.a. 3-6 years experience.

ASSOCIATE PROGRAMMERS
c. £7,200 p.a. 1-4 years experience.

These are all first rate opportunities, not only for those wishing to spread their wings and take responsibility, but also for those who want to work in an environment that rewards skill, effort and achievement.

Free BUPA, generous relocation, pension scheme, free life assurance and preferential company stock purchase plan are all part of our comprehensive package.

If you have experience of a mini or mainframe systems environment and are looking for career advancement, contact: Debbie Teague on 0234-65121 or write to her at Prime Computer, Research Development and Engineering, The Merion Centre, St Peter's Street, Bedford MK40 2PN.

PRIME Computer

UNIVERSITY OF LIVERPOOL
Department of Computational and Statistical Science
Lecturer
In Computer Science/Computational Mathematics
Demonstrator/Senior Demonstrator
In Computational Mathematics

Applications are invited for this three year postgraduate programme in the Department of Computational and Statistical Science. The successful candidate will be responsible for the development of innovative new software for a wide variety of commercial and industrial applications worldwide. The ever increasing workload within this expanding environment means we're now looking for a talented Chief Operator. You'll report to the Operations Manager and will assume day-to-day responsibility for the efficient control of all computers, peripherals and operating staff. This will entail maintaining accurate usage records, planning operating schedules and providing users with sound technical advice. To make a positive contribution within this important, days only role, you'll need a flexible approach to the job, sound administrative abilities, good all-round communicative skills and a management potential. In addition, a working knowledge of VAX/VMS telecomm and other manufacturers' hardware would be a distinct advantage. We offer a high initial salary and a full range of valuable benefits. Naturally, success in this role will lead to career development opportunities within our diverse organisation. For more information, please telephone Sheila Newman on Reading (0734) 85131, ext. 293, or write to her for an application form at Digital Equipment Co. Ltd., Acra Road, Reading, Berks, RG2 9AT ref. 145.

FOR
CLASSIFIED
ADVERTISING USE
DIRECT LINE
01-661 0121

Chief Operator

Digital place great emphasis on continuous systems advancement. The European Software Engineering unit at our Reading location is responsible for the development of innovative new software for a wide variety of commercial and industrial applications worldwide.

The ever increasing workload within this expanding environment means we're now looking for a talented Chief Operator. You'll report to the Operations Manager and will assume day-to-day responsibility for the efficient control of all computers, peripherals and operating staff. This will entail maintaining accurate usage records, planning operating schedules and providing users with sound technical advice.

To make a positive contribution within this important, days only role, you'll need a flexible approach to the job, sound administrative abilities, good all-round communicative skills and a management potential. In addition, a working knowledge of VAX/VMS telecomm and other manufacturers' hardware would be a distinct advantage.

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digital

Australia & New Zealand

Salesmen and Systems Engineers

Senior EDP Opportunities with Fujitsu Ltd.

Fujitsu Ltd is Japan's largest computer manufacturer with revenue in the last trading year exceeding US\$2 billion.

Fujitsu Ltd has been in existence as a company since 1935 and has been manufacturing computers since 1952. To date Fujitsu has shipped over 40,000 computers, mainly within Japan but increasingly over the past six years to countries outside Japan.

In 1975, Fujitsu manufactured the first all LSI computer, the M190, (equivalent in power to an IBM 3033) and since that time Fujitsu has kept its technological lead in both performance and price over the major North American manufacturers.

Fujitsu now manufactures a full range of advanced LSI mainframes from the M130 (about an IBM 4331) to the M200 Quad Processor, which at 28MIPS is the most powerful non vector processor available in the marketplace.

All these systems use highly sophisticated Fujitsu developed operating systems. For the smaller systems there is F2, which is equivalent to a functionally enhanced DOS/VSE. From the M150 upwards there is F4, which offers the power and facilities of MVS without the complexity of operation or the system overheads.

Facom Australia Limited

Facom Australia Ltd (FAL) was formed in June 1972 to market Fujitsu computers in Australia. Since that time the company has progressed steadily developing a customer base and building a professional marketing and support organisation.

Our success in achieving these objectives can be measured in several ways, but some of the key reasons that we are winning an ever increasing share of the Australian market are:

- Our reputation for reliability of hardware and software is such that we often contract for 99% availability 42 of our 80 installations did not record any down time in the last 6 months.

- Our prices are set to give us a price/performance edge over our competition.
- We meet very short lead times and supply high quality support services.

We now operate in all States and in New Zealand and employ over 400 people. Our customers include Federal and State Government organisations, and some of the largest Corporations in Australia.

In the past sales year we sold over A\$40 million worth of 'M' Series computers including an M200MP to the Federal Government which is the largest computer installation in Australia. We have also sold another 30-40 'M' series machines in all States.

In terms of hardware sales this means that FAL is becoming the second largest supplier of computers in Australia (behind IBM). It also means that we have many job opportunities to offer to cover our explosive growth this past year to ensure that the momentum built up does not slow this year.

The Sales Opportunities A\$48K Upwards

Location

We require salesmen in all States but especially Melbourne and Wellington.

Experience

The successful applicant will have about 8 years in the mainframe business of which the first 50% would be in a technical role, with the last 50% in direct sales. He would be in his late 20's or early 30's and would be able to prove a stable domestic background and work history. He would also have a good scholastic and starting record.

Remuneration

In this sales year we anticipate all our salesmen will achieve their quotas. At this quota level, based on this year's performance, an experienced salesman would earn A\$56,000.

Remuneration is split between the various tax free allowances, salary and commission and achievement of 100% of quota earns a trip for the salesman and his wife/friend to the Facom Forum which is held in an overseas location.

The Systems Engineering Opportunities A\$25K Upwards

Location

We require SE's in most States and in Auckland and Wellington.

Experience

The areas of expertise we are seeking include: • Operating System Support • Data Communication and Networking • Database • Project Management • Customer Education.

The people who will find it easiest to adapt to working with a FJ Hardware/Software environment would be those with comprehensive background in MVS or VSI systems. However, significant experience with other large systems such as Univac 1100 series would be appropriate.

It would be expected that successful applicants would have 8-10 years experience in the industry with a high skill level in one or more of the above areas.

Remuneration

Will depend on the type and degree of previous experience but a package in the vicinity of A\$27K to A\$30K should be taken as a guide.

Higher salaries would be offered to outstanding applicants. The salary package includes allowance covering car, business hospitality and telephone expenses.

Assistance with relocation costs to Australia and New Zealand will be negotiated with successful candidates.

Interviews will commence on 4/5 May.

Applications should, in the first instance, be made to Prescott Computers Limited. Prescott specialise in computer recruitment for Australia and are able to advise candidates on working and living conditions within Australia.

Please telephone: **Chad Stolper** or **Anne Breuer** on (01)-434 2698 or (01)-439 2626 or, if you prefer, write to:

Prescott Computers Limited

43 Conduit Street, London W1R 9FB
Telephone: 01-434 2698. Telex: 298881.

technical automation jobs in Holland

BSO offers you the opportunity to keep in touch with the latest developments in technical automation

Buro voor Systeem Ontwikkeling (BSO) is an independent Dutch Holding Company consisting of three subsidiary companies, one of which, BSO/Automation Technology BV, specialises in the field of technical and scientific automation. BSO/A is currently engaged in various real-time process control and monitoring systems using microprocessors and minicomputers. Typical projects in this field are:

- development of medical Computerized Tomography and imaging apparatus
- development of computer systems for satellite ground stations
- development of a distributed automatic building security system
- development of a generalised aircraft simulation model
- development of a 'message handling' system for an industrial process
- control of dredging platforms.

BSO/Automation Technology itself consists of three staff groups: Software Technology, Systems Engineering and Cybernetics. From these groups project teams are formed, which are coordinated by project managers. Members of BSO have varied backgrounds and expertise in a wide range of disciplines and share a number of common qualities:

- they have a university education or the equivalent
- they are capable of working independently
- they show a high degree of initiative
- they are enthusiastic
- they appreciate an informal atmosphere, the opportunities to grow with the company, the type of projects and their variety, and last but not least - the salary and fringe benefits.

We would like to meet people with similar interests. We have for them the following vacancies:

project leaders

(up to £15,000)

For a number of current and future projects. You should have experience in design and implementation of real-time industrial or scientific systems and at least 6 years experience in technical automation.

systems designers

microprocessors

(up to £14,000)

You will work in the cybernetics group and would be expected to discuss directly with clients their requirements for equipment, write proposals and design, develop and supervise the implementation of equipment.

You already have a good record of completed projects based on microprocessors and have demonstrated a planned approach in such developments. You have a good knowledge of assembler languages and at least one high level language (e.g. Pascal, Fortran, PL/M, Coral 66, RTL2).

It is an advantage if you have, in addition to the above, knowledge of data transmission and data collection techniques.

specialist in distributed data bases

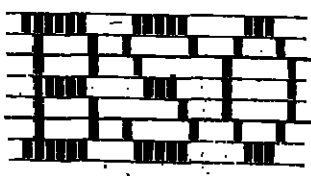
(up to £16,000)

You are familiar with DBMS-software (Codasyl) and you have knowledge or experience of the latest techniques like conflict analysis, parallel searching, multisite queries etc. It is an advantage if you, in addition to the above, know about back-end or local networks.

Your job might be in Utrecht or at other locations in Holland. You will also have the opportunity, if you wish, to work for short or long periods on projects located outside the Netherlands. In addition to the salaries we offer a generous package of fringe benefits including a relocation grant, company car, medical insurance, pension, etc.

If you want to know more about BSO or the vacancies described above, please pick up the phone and call Yvonne Waddell, the secretary of BSO/UK, any time of the day or evening after April 12. She will be delighted to give you more information and will organise interviews in UK or Holland with the staff of BSO/A. You can reach her at the following address: BSO/UK, PO Box no. 5, Oxted RH 8 0UG, Surrey, tel. Oxted (08833) 6253.

You can also call (please reverse charges) our personnel manager, Robert Schalekamp, tel. 010-31 30 946746. If you wish, you can send your application plus c.v. directly to him at the address below.



BSO/Automation Technology BV,

Koningin Wilhelminalaan 3, Postbus 3059, 3502 GB Utrecht, tel. 010-31 30 946746.

Senior Systems Analyst

CROYDON, SURREY £8K to £10K

At South Eastern Gas we require an experienced, capable and creative Systems Analyst to take responsibility for major project work, developing on-line and mini-computer systems to meet the needs of a progressive modern energy industry.

Our hardware includes an IBM 3032 and an Amdahl 470/V78. We also use CICS, VSAM and the Roscoe Program Development System.

So - if this is the kind of environment you are seeking to further your career, can offer at least 2/3 years proven experience and are looking for the benefits, expedited from a major organisation, then you could be the right person for this job.

For further details, please ring Roy Broughton on 01-688 4466; ext. 6002, or write, giving full details to the Personnel Manager, South Eastern Gas, Segos House, Katherine Street, Croydon, Surrey CR9 1JL. Quoting ref. Q16783/GW.

SOUTH EASTERN GAS

Business Machines TECHNICIANS

Technicians needed to install and service screen-based word-processors, small business computers and other office machines for an installation and servicing company based in Riyadh. For details on merit: Single status initially. M/S later.

C.Vs, quoting Ref: 36/SML/387, to F. J. Salfack Associates, 17 North Hill, Colchester CO1 1DZ. Telephone: 0206 85252

IBM 4300 NEW TECHNOLOGY UNIVAC REAL-TIME SYSTEMS ICCF ELIAS
PRESTEL COMMUNICATIONS NETWORK SDF GRAPHICS
TEXT PROCESSING NORFOLK TOTALLY NEW DESIGN FRONT-ENDING
PL1 FOUR MAINFRAMES

Systems Analyst

The successful applicant will be responsible for the design and control of major projects, and will join an existing team of professional analysts. Candidates should have proven ability in systems analysis, including the successful design, implementation and support of at least one major system. Experience of IBM 4300, or 370 series machines, and real-time systems would be an advantage.

We offer a competitive salary, good working conditions, four weeks' annual holiday, a profit sharing bonus scheme, pension and life assurance schemes, canteen and social club facilities and generous assistance with relocation expenses where applicable.

Application should be made in writing with full details to:
Personnel Office,
Eastern Counties Newspapers Limited

Prospect House
Rouen Road
Norwich NR1 1RE
Telephone Norwich (0603) 28511

COMPUTER SERVICES MANAGER

Experienced person required to take over small but expanding DP department currently using Honeywell Level 62 main frame, working mainly in an on line environment. The person will be required to plan, direct and co-ordinate the organisation's data processing service in accordance with the objectives laid down by the Board. The company is in an interesting stage of expansion and real opportunities exist for the right person. Salary by negotiation, company car, contributory pension scheme are included in a generous package. Please reply in the first instance with full C.V. marking the envelope 'Private & Confidential' to the General Manager at:

Cambridge Jackson Limited

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Birmingham B5 4BT
A Ladbrooke Universal Company

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AM TASK FORCE LTD.
44 Kingway, Stoke-on-Trent
Tel: 0782 410217

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CONTRACT STAFF SUPPORT RECRUITMENT CONSULTANCY BUSINESS SYSTEMS SOFTWARE PACKAGES

SENIOR PROGRAMMERS Victoria c £9,000

- ★ To become involved in "State of the Art" development using fully conversational IMS DB/DC
- ★ 2 years' plus experience in COBOL with some CICS/DLI or IMS

- ★ A first-class Multinational Company with excellent working environment, benefits and prospects
- ★ Candidates with some Supervisory experience will be shown preference.

Ref: PJ 80188

CHIEF PROGRAMMER

Central London

to £12K

- ★ 8/7 years' COBOL Programming - UNIVAC exp preferred
- ★ To take part in Database applications
- ★ High degree of responsibility
- ★ Excellent benefits as expected of major company

Ref: PJ 81270

CONSULTANTS, ANALYST PROGRAMMERS & PROGRAMMERS HP 3000

Middx, Herts, City & Beds
Max £13K + Car

- ★ Developing Systems using HP3000/IMAGE/VIEW/QUERY
- ★ Requirements for BASIC & COBOL
- ★ Two requirements for SPL (will consider ICL PLAN)

Ref: PJ 81264

REAL TIME SYSTEMS PROFESSIONALS

London, Berks, Sussex, Hants & USA
Pounds Unlimited

- ★ To develop Communications System & Operating Systems
- ★ Preferably experience of PDPs or Micros, Teletex, Viewdata.
- ★ Excellent Companies, Parks and Prospects
- ★ PASCAL is a Plus

Ref: PJ 80208

Open until at least 8 p.m. every evening

PROGRAMMER, SENIOR PROGRAMMER, ANALYST, PROJECT LEADER

Salaries to £13K-Negotiable

- ★ Team of 6 people
- ★ To design and implement Systems based on CICS/DLI and DPPX
- ★ New 4300/8100 Combination

Ref: PJ 81278

SYSTEMS PROGRAMMERS London, Essex, Herts, Surrey Totally negotiable

- ★ DOS, OS, MVS
- ★ Junior, Medium & Heavyweight
- ★ 1 particular job to help support IBM related products, neg + car.

Ref: PJ 81263

HEXAGON computer services

Hexagon House 148 Wardour Street London W1V 3TR

01-438 3671

International Technical Computer Services Manager (£20,000)

The position consists of managing a staff group of computer specialists, that provide technical support services in the following areas:

- Burroughs large system computers
- IBM 4300 computers
- Datapoint minicomputers
- Operating system software
- Database software
- Telecommunications
- Technical utility programming
- User consultation and training

The ideal candidates, male or female, would have a university degree and be self-motivated.

This multinational company has a leading position in the field of radiation chemistry. The European head office in Brussels has a dual-processor B 7000 and controls a growing network of minicomputers and IBM 4300 in several European countries and interfaces with a similar system in its headquarters in California.

The starting salaries and fringe benefits (such as profit sharing) are commensurate with high levels of ability. Removal expenses will be paid by the company.

Burroughs Computer Systems Specialist (£16,000)

Self-motivated database and operating systems technical specialist with experience in the following areas:

- Large systems Burroughs computers (B 6000/B 7000)
- MCP and BDMS II software
- Algol and Cobol programming languages
- CANDE and telecommunications

The individual we seek will have at least five years' experience in Burroughs computing systems at the operating system level.

Contact F.W. in London: 01-388 0036
Contact D.G. in Brussels: 02-653 2702

Euroserve
International Consultants
The Studio 35 Paddenawick Rd London W8

SUPPORT ENGINEER EUROPE

Are you an experienced engineer - male or female - with an in-depth knowledge of microcomputers and associated peripherals? Do you also have experience of supporting software written in the prime software languages? And would you be prepared to travel overseas?

Then we would like to hear from you. We are the European subsidiary of an established international company dealing in a wide range of computer equipment and peripherals, and we need a self-starter - preferably with a computer-relevant degree or HND - to support our customers in Europe.

We offer an attractive salary package in line with experience and ability, which includes all the benefits you would expect from a progressive organisation. If you feel you could meet the above criteria, write with brief career details to:

COMPUTER STAFF

Looking for a job but can't spare the time?

At C.P.I. we don't believe in bringing people to London on a fool's errand. If you are looking for a new position just give us a call and we will honestly tell you what we have available.

In the event that there is nothing currently suitable, we are quite happy to keep you informed of developments by telephone.

For further details contact:
Barbara Basquill on 01-838 6776

Computer Personnel International
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200

EXCEPTIONAL EUROPEAN OPPORTUNITIES

A major multinational corporation is seeking high-calibre personnel to expand its system studies group based in France at Orleans. THE SYSTEMS STUDIES GROUP is involved in COMPUTER DEVELOPMENT PROJECTS across a wide spectrum of company activities - management, production, manufacturing, process control, marketing and office applications. Hardware is IBM 4341 and 370 using MVS and CICS. Applications are invited from experienced and mature individuals for the following positions:

1. SENIOR SYSTEMS CONSULTANT
The primary role is to participate in and advise on overall system strategy together with company management and to accept responsibility for overseeing the implementation of particular projects. Education to Honours degree level plus at least 4 years of solid experience on IBM equipment. Including CICS and BAL environments is essential. Knowledge of the French language is mandatory.

2. SYSTEMS PROGRAMMER
Requirements are to be responsible for the development of programs within a system and to establish and maintain successful liaison between users and the development team. A very minimum of 2 years IBM experience with COBOL/MVS, CICS and BAL is essential together with a sound working knowledge of French.

3. PROJECT LEADER - PRODUCTION
The project leader must assist in the organisation of computer applications within the manufacturing process involving both management information systems and process control. Factory control systems built up from process control networks are to be implemented using mini computer systems. Candidates should be educated to engineering degree level, have production management experience and a good knowledge of mini computer systems. Knowledge of food industry processing would be an added advantage. Knowledge of French language essential.

4. PROJECT LEADER - PERSONAL COMPUTING
The project leader must develop both strategy and techniques for the introduction of information systems throughout the various departments of the company. He will ensure that correct interfaces are established between departments and systems in accordance with the management strategy planning. He will have a good knowledge of APL, PASCAL, BASIC or FORTRAN and possess the ability to communicate his ideas clearly and diplomatically. Teaching and instruction of user department staff will also be his responsibility. Knowledge of French is essential.

5. Various other SENIOR PROJECT MANAGER AND PROJECT MANAGER VACANCIES exist relating to the development of standard commercial applications such as stock control, financial control, in-house timesheeting systems etc. Applicants should have IBM, TSO, VSPP, APL and BASIC experience. Spoken French is essential.

PLEASE WRITE OR TELEPHONE NOW
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Industrial Artists Ltd, 21, Brompton, Hiltin, Herts,
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ARE YOU SELLING MICROCOMPUTERS?

One of Britain's top 20 companies, already well-established computer-users in six multinational groups, seeks another two successful sales people for its information-systems subsidiary in Middlesex. The Company recently acquired sole UK marketing rights for a range of Z-80 based business microcomputers with full CPM software capability as well as viewdata and networking and communications options.

SE and SW Territories Unrestricted Earnings

These positions offer a car, BUPA, expenses paid, four weeks holiday, pension plan and product training. The Company is prepared to discuss assistance with relocation costs. Excellent technical sales support, continuous product development and substantial freedom of action also combine to maximise your success.

Interested applicants should write with full career details to:

Robert G. J. Wood,

SISCO LIMITED,

97 Portsmouth Road, Guildford, Surrey, GU2 5DL.
Tel: Guildford (0483) 34581

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Database work in Britain's Oil Industry

One of the largest participants in North Sea oil exploration and production, BNO is also recognised for advanced thinking on the application of computers to its many activities. Major database system developments are now being pursued, further extending an already demanding and varied workload, on large IBM mainframe equipment supported by a network of HP3000s. There are a number of key posts to be filled in Glasgow by Systems Analysts with degree or equivalent. You should have a programming background and experience of database design and implementation, using a proprietary DBMS and data analysis techniques. Knowledge of one or more of the following would

be an advantage: data dictionary, IDMS, RAMIS/FOCUS.

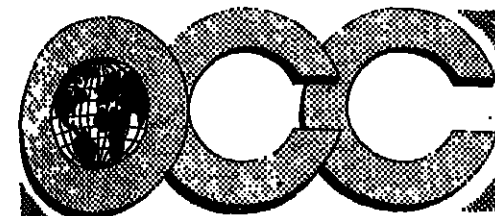
Working in BNO offers great scope for personal fulfilment and career development, and we provide appropriate training where necessary.

The salary/benefits package, including generous assistance with any relocation, is structured to attract people of exceptional abilities.

For details and application form, which should reach us by 24 April, please write or telephone quoting ref KM/CW to: Ken Mearchert, Divisional Personnel Officer, The British National Oil Corporation, 150 St. Vincent Street, Glasgow G2 5LJ.
Tel: 041-226 5555.

BNO

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Specialists since 1971 in UK and International computer and technical appointments.

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IBM DOS/VSE Systems Programmers- As Section Managers in Kuwait you can earn £16,000 tax free, on married status!

(to net this figure in the UK you would need to gross at least £25,000)

The positions, with The Commercial Bank of Kuwait, are permanent on a 2 year renewable basis, with excellent working and living conditions.

In addition the Bank provides free fully furnished accommodation, generous relocation allowances, annual return flights home and a contribution towards the private education of children. Also, the cost of living is now cheaper than in the UK.

The Bank is undertaking a major expansion and development programme, involving the imminent installation of an IBM 4341, together with associated software and over 200 IBM 3600 terminals.

For this, two key systems managers are needed - Section Manager (Data Comms), Section Manager (Operating Systems).

For both these positions you will need a solid systems programming background of at least six years in a DOS/VS or DOS/VSE environment. For the operating systems position, a good knowledge of DOS under VM/370 would be useful. Whilst for the data comms. position, solid exposure to a CICS or CICS/VS system is mandatory.

We also require CICS Applications Programmers, with at least three years' experience, who have a good knowledge of Assembler and CICS at MACRO level. The same conditions as above. Salaries to £14,000.

Contact Brian Harris on the above number (daytime).
Or on 027074 438 (evenings/weekends).

(0978)

EUROPEAN DATA PROCESSING CONSULTANT/ ADVISER

SURREY/HANTS BORDER c. £15,000 p.a.

Above-average multinational in household and industrial consumables are seeking a person capable of thriving in an environment whose success is based on open discussion and team effort.

This position will involve the co-ordination and planning of all computer-related activities in several associated companies. Accordingly, considerable travel throughout Europe is necessary in order to carry out this job successfully. As a consultant/adviser you will work very closely with both senior management and project teams to ensure that the system needs are met in the companies for which you are responsible. Familiarity with the following areas is necessary:

- Communications
- Commercial Business Systems
- Minicomputers
- Systems Analysis/Design
- Project Management

People motivators are most likely to be the achievers in this environment, and will enjoy the rewards from a company geared to recognise individuals committed to developing their career.

Recruiting on behalf of clients, we will be pleased to exchange information confidentially by telephone and personal meeting. Please ring, quoting reference 406, or write briefly (messages recorded after hours).

(1512)

EDP SYSTEMS 01.637 5796
52-53 Margaret St. London W1N 7FF

BRIGHTON
POLYTECHNIC
DEPARTMENT OF COMPUTING
AND CYBERNETICS

Lecturers and Senior Lecturers in Computing

Applications are invited from candidates with good academic qualifications and research or industrial experience, to lecture on a wide range of computing courses in an expanding department.

Applicants should have a particular interest and expertise in at least one of the following areas:

- Systems Analysis
- Data Bases
- Microelectronics/ Microprocessors
- Robotics
- Programming
- Artificial Intelligence
- Pattern Recognition/ Graphics
- Networks
- Communications

Salary Scales:

Lecturer I: £4,083-£8,066

Lecturer II: £3,912-£7,202

Senior Lecturer: £3,962-£11,200

Further details and application forms from the Personnel Officer, Brighton Polytechnic, Brighton, BN2 4AT. Tel: Brighton 0273 608 Ext. 257.

Closing date for applications after post: 15/02/81

(1502)

CONTRACT PROGRAMMER

4 months+
Central London
Must have experience in COBOL at command level plus good COBOL and application of COBOL. To start beginning of May, possibly earlier.
Please contact Daphne Jones

FORCED
Computers
12000 Waltham
Croydon, Surrey CR9 3JL

INTERNATIONAL SYSTEMS ANALYST

MIDD. £10,500

A large company situated in Middlesex is looking for a Systems Analyst who would like to travel abroad for short periods. The applicant will have a minimum of 1 year's experience of COBOL programming and 1 year's systems analysis, and an NGR background is desirable. If you have the above qualifications and enjoy international travel, then ring us now for further details.

CW 15/1 TRICIA

IBM SYSTEMS PROGRAMMER

S.E. LONDON £11,000

If you are an experienced Systems Programmer (2 years+) with a working knowledge of some of the following: OS, MVS, CICS, VTAM etc, then you could be the right person for the above position. This company offers excellent company benefits in addition to a nice salary, so ring now for further details.

CW 15/2 TRICIA

PROJECT LEADER

E. LONDON c. £11,000

This well-known manufacturer requires a Project Leader with 3 years' experience of IBM PL/1 for involvement in large project systems development. The hardware is 370 Under DOS/POWER/VS. Company benefits include a non-CPS. If your experience is relevant, contact us now for further details.

CW 15/3 TRICIA

CONTRACT ANALYST/PROGRAMMERS WANTED

IBM	CICS COBOL M/J	OXFORD	3M+
IBM	CICS OS PL/1	LONDON	2M+
IBM	CICS AS/400	ESSEX	2M+
IBM	MARK IV OS OR DOS	LONDON	2M+
IBM	SYS 34 RPL II	LONDON	2M+
IBM	COBOL EXEC	LONDON	2M+
IBM	CICS DESIGNER	BRISTOL	1.7M

PHONE MICHAEL FOR DETAILS

U&A Recruitment Consultants
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01-995 3883 (01.995 8138 Evenings)
Prospect Place, London W4 3JH

HP 3000 on Line Design Liverpool

We are responsible for the UK manufacture of Glaxo pharmaceuticals and their sale in this country.

The Company is engaged in the implementation of a large network of Hewlett Packard 3000 minicomputers involving all Company locations. There is a major development programme of advanced on line systems mainly in the production planning and recording, inventory control and quality control areas.

Our Speke installation currently operates on HP 3000 series III computer with 30 user terminals and this configuration will increase considerably as development continues. We now require Analyst/Programmers to carry out System design and programming and to support the expansion in activity which is planned.

Applicants should have a sound COBOL programming background and be ready to accept the additional responsibilities of user liaison and systems design/implementation. Experience in the above mentioned areas of Company operations would be an advantage. Knowledge of on line programming and data base techniques would also be an advantage although training in the relevant HP Software will be provided as necessary.

Career prospects are excellent and in addition to a good starting salary there are attractive conditions of employment including flexible working hours, Company Bonus Scheme, non-contributory Pension Scheme and assistance with relocation expenses. The factory is within easy commuting distance of pleasant residential areas in Cheshire and the Wirral.

Please write for an application form to: Mr. G. Salisbury, Personnel Manager, Glaxo Operations UK Limited, Speke Boulevard, Speke, Liverpool L24 9JD. Or telephone: (051) 488 1881, quoting reference FY/173.



INTERVIEWER

We are a small specialist consultancy currently seeking an interviewer to run our Computer Division. Prospective candidates will have to have three years' agency experience and be able to work without supervision. The commission/bonus will be negotiable. If in first instance contact:

STEVEN DOPSON, 01-623 0119

PROGRAMMER IN MUNICH

If you have experience of Zilog products and want to live South of Munich, please write or phone for an interview in London in early May.

Luther Ulbrich
Ulrich Automation GMSH
Breteler Weg 37
D-8192 Geretsried
West Germany
Phone 0149 8771 3012

TORONTO, CANADA COMPUTER CONSULTANCY Programmers

2½ - 3 years COBOL

Experience of IBM mainframe and/or Honeywell, DEC, or HP minis preferred.

Interviews will be held in Liverpool week commencing 4th May 1981.

Apply in the first instance to:

Ray Mount, Fraser Williams Group Ltd.,
Port of Liverpool Building, Pier Head, Liverpool L3 1BY.
Telephone: 051 227 3371.

Fraser Williams Computer Consultants

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LIVERPOOL POLYTECHNIC COMPUTER SERVICES DEPARTMENT PROGRAMMER

£5,952-£6,750 per annum

A new computer system is being installed during the summer to provide a new computer system for the department. The new computer system, supporting 64 simultaneous users, will be operating in parallel with the existing 1903A batch system.

The Polytechnic's Computer Services Department was created in 1976 to provide a centralised service for the department's computer systems. The successful applicant will be expected to play a major role in the installation of the system and the establishment of an effective computing service for the Polytechnic.

THE VACANCY OFFERS A UNIQUE OPPORTUNITY TO BE INVOLVED AT THE START OF A MAJOR DEVELOPMENT PROGRAMME. PLEASE QUOTE REFERENCE LPA/81.

Applicants are invited from candidates who have, or expect to obtain, a degree in Computer Science, or a related discipline, and who are currently employed in a computer service department. The successful candidate will be expected to play a major role in the installation of the system and the establishment of an effective computing service for the Polytechnic.

For further details to Mr. D. Wain, Assistant Project Director, Computers in the Curriculum, Chelsea College, Main Road, London SW3 2LX. Closing date: 30th April 1981.

CHELSEA COLLEGE University of London COMPUTERS IN THE CURRICULUM requires a PROGRAMMER

to be involved in the forefront of development of Computer Assisted Learning (CAL) for a range of micro and mini computers. Experience of computing for a variety of curriculum subjects would be an advantage.

The post is initially for one year commencing as soon as possible after 31st March 1981. Salary within the range £2,500-£3,541, salary scales under review plus 1981 London Allowance according to qualifications and experience. It may be possible to obtain secondment from an LEA.

Write for further details to Mr. D. Wain, Assistant Project Director, Computers in the Curriculum, Chelsea College, Main Road, London SW3 2LX. Closing date: 30th April 1981.

CHECK-OUT TO THE USA

BOSTON, NEW ENGLAND

Our clients, the Stop & Shop Companies Inc., are a diversified retailing group operating a total of 352 supermarkets, discount department stores, drug stores and tobacco shops throughout New England, New York, New Jersey and Virginia.

These career positions are located at their Boston, Mass., headquarters where they utilise 3 x 370/158s under MVS and are totally dedicated to developing an IMS/RAMIS on-line environment. Cobol is the main language and all work will be on the development of new on-line systems, including a major Point-of-Sale project.

SENIOR PROGRAMMER/ANALYSTS

\$25,000-\$28,000

A minimum of four years' D.P. experience is required with fluency in Cobol and an understanding of JCL. Successful candidates for these positions are considered to be the mainstay of a computer development project and will carry most of the first-line analytical and technical responsibilities for the majority of project phases.

Our clients will be interviewing for these positions in early May so please telephone immediately or write to E. J. Rhodes Associates, c/o CRS, 18 Buckingham Palace Road, London, S.W.1. Telephone number 01-828 1384.



university college of swansea

Lecturer (Re-advertisement)

Applications are invited for a Lectureship in the Department of Computer Science. Candidates should have a first or good second-class honours degree in Mathematics, Computer Science, or closely related subject together with substantial postgraduate research experience. Applications will be welcomed from candidates with research interests in any area of computer science.

The appointment will date from 1 September 1981, and will be made at the lower end of the salary scale £5,070-£12,000 per annum.

Further particulars and application forms (2 copies) may be obtained from the Personnel Officer, University College of Swansea, Singleton Park, Swansea, SA2 8PP, to which office they should be returned by Friday, 1 May, 1981.

As applicants from the first advertisement will automatically be considered, there is no need to re-apply.

(151)

THE MOTOR INDUSTRY RESEARCH ASSOCIATION

SCIENTIFIC PROGRAMMER

To join a small team working on a wide range of scientific projects concerned with vehicle research and development. We use a PDP-11/2300 computer and are looking for a motivated individual with a minimum of 2 years' experience in scientific programming on a PDP-11.

General years' experience in scientific programming.

Salary: £5,000-£7,000 a year (negotiable).

Telephone: John Poulton at (0922) 24441.

or write: Personnel Manager, The Motor Industry Research Association, Watlington Road, Oxford, OX4 9DQ.

or write: Personnel Manager, The Motor Industry Research Association, Watlington Road, Oxford, OX4 9DQ.

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Programmers

BIGGLESWADE
£5,500-£8,500 plus bonus

We are looking for people with a minimum of 1 year's proven programming experience preferably in one of the following areas:

- ★ ICL 1500 BTL
- ★ ANY M/C ASSEMBLER
- ★ ANY M/C BASIC

All successful applicants will demonstrate that they have the potential to develop their own skills and the more experienced applicants must be able to work with the minimum of supervision whilst providing assistance to other programming staff.

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Lloyds Bank House, 39 High Street
Biggleswade, Beds.
Telephone (0767) 316286

Barron McCann
Limited

Computer Systems and Consultancy

MVS Systems Programming

Netherlands c.£2,100/month

An experienced MVS Systems Programmer is required to join two of our software consultants providing technical support to an expanding Data Centre in the Netherlands. The successful applicant will be assigned to a small MVS group where in addition to normal implementation and maintenance duties responsibilities will include both assisting the Head of the Group with the planning of new releases and providing technical support to junior members of the team. The Centre comprises multiple 303X cpu's running MVS 3.8 SE II (SP planned) supporting a large network of remote terminals through such facilities as JES2 RJE, ACF, TSO, VSPC, IMS/VS and VM/CMS.

DOS/VSE Support

Holland c.£2,000/month

We require an experienced Systems Programmer to undertake an open-ended assignment (min. 8 months) in the Netherlands. Our client is running an IBM 4341 with DOS/VSE rel. 2 under VM supporting CICS/VS and DL1. The successful applicant will be responsible for all systems programming activities at the installation including planning, implementation, maintenance and the provision of technical support to applications staff. Candidates must therefore be capable of working on their own initiative and have at least 3 years systems programming experience coupled with a knowledge of one or more of the above mentioned Program Products.

TP Support-Shadow II

Holland c.£2,000/month

We are seeking a TP Systems Programmer to support Version 3.0 of Shadow, running a network of over 100 local and remote terminals. As well as supporting the operational TP system, duties will include installing Shadow on a new 4341, and involvement in an upgrade from BTAM to ACF/VTAM. Applicants should be capable of providing technical advice to development groups as well as undertaking the usual system support tasks.

IMS Technical Support

Holland c.£1,900/month

We are seeking a technically oriented Analyst Programmer to work with a small team in the Netherlands on the development of an international data collection and distribution system based on a centralised IMS Database. Duties will include the provision of IMS technical support to the group as well as the design and implementation of enhancements to improve system efficiency. In addition to a thorough knowledge of IMS DB/DC candidates should have Cobol experience and a knowledge of assembler would be an additional advantage.

VM Implementation

Amsterdam c.£2,000/month

We are seeking an experienced Systems Programmer to implement VM/SP at an OS/VS1 installation in the Netherlands. VM will be run both on a production 4341, with the operational VS1 system as a virtual machine, and on other 4341's. Duties will include the provision of technical support to applications staff, and should have a good all-round knowledge of VM, and must be prepared to take on all tasks associated with installing VM/SP in both these environments.

CDS is a 45 strong Anglo-Swiss Consultancy specialising in the following areas:
• Systems Programming - MVS, VS1, VM, DOS/VSE, ACF, IMS/VS, CICS/VS.
• DB/DC Application Development - Particularly IMS DB/DC, DL1 & CICS.
For further details of the above positions or for an informal discussion on future European or UK assignments please contact us at our UK office or on our office numbers at evenings/weekends: Brian Blight 03446 5386 or Jim Shaw 0850 24546.

GDS The IBM System Software Specialists

GDS Ltd, 67-73 Park Street, Cambridge, Surrey GU10 3PE. Tel. 0276 26645 Telex 858085

Recruitment



In Informatics

Packet Switching

Paris: Salary to £15K

A French National Communications and Network Company is seeking several French speaking Packet Switching Professionals. You will be expected to be fully familiar with packet switching techniques, prototyping, data communications and modern/multiplex interfacing. Of special interest will be candidates with experience of system implementation on any dual-processor. Initially the Company's U.K. subsidiary will offer employment to those selected after which you will relocate to the Company's Paris office for a minimum period of 18 months. Remuneration consists of a U.K. salary, overseas allowance and generous medical and pension schemes. First interviews will be held in London after which shortlisted candidates will visit Paris for final selection. Ref: U15/A

R/T Software Designers

Home Counties: Salaries to £12K

Software Designers with at least two years' experience of real-time systems development are urgently required for the Development Department of a leading systems supplier. All the software used in their products is developed in-house thus providing an extremely broad range of projects for successful applicants. Of particular interest will be candidates with expertise in one or more of the following areas: computer development, multi-tasking systems, data communications or process control systems. Specific hardware experience is not a requirement although respondents with exposure to DEC PDP 11 or Motorola based systems will be especially favoured. Ref: L15/B

CAD/CAM Systems

Thames Valley: Salary to £14K

A leading supplier of CAD/CAM Graphics Systems is seeking Senior Applications Consultants and Systems Programmers. The Company's European Headquarters are based within minutes drive of extensive rail, motorway and airport facilities. Successful candidates must offer recent or current involvement in one or more of the following areas: pre-sales feasibility studies; post-sales graphics support; advice to first-time users on installation problems and/or training of designers and draughtsmen in CAD/CAM techniques. Certain positions involve a degree of mobility and will carry a car or car allowance. In addition to an above average salary the Company offers an extensive range of valuable benefits including a profit share scheme. Where necessary, relocation assistance will be given. Ref: L15/C

IBM Programmers

Holland: Salaries to £12K

Applications Programmers are sought by the European Headquarters of an oil service company situated in West Netherlands. Fluency in IBM COBOL is essential whilst additional skills in PL/I or BAL are much appreciated. Suitable candidates must be fully familiar with Structured Programming techniques used in a multi- or large-scale IBM environment. Of particular interest will be those who have participated in the development and implementation of an on-line system in the areas of Payroll, Stock Control or Bought/Sales Ledgers. These positions represent an outstanding opportunity for ambitious Programmers to enhance their careers whilst enjoying a foreign culture. Ref: L15/D

Pascal Programmers

London & Home Counties: Salary to £10K

A leading supplier of microprocessor development systems has an urgent requirement for Programmers to participate in its advanced compiler development project. Whilst our client has a strong preference for respondents with a knowledge of PASCAL, candidates fluent in any technically orientated high level language are encouraged to apply. It is essential for all applicants to demonstrate a knowledge of Structured Programming techniques and to have worked on mini or micro computer based systems. These vacancies will strongly appeal to talented, career-minded individuals wishing to enhance their technical skills in one of the most challenging areas of the data processing industry. Ref: L15/E

Financial Applications

Berkshire: Salary to £13K + Car

Our client is of U.S. parentage having its Headquarters close to extensive motorway and rail facilities in Berkshire. As a result of increased sales of its financial management systems the Company is now seeking additional Financial Analysts and Designers to act in both pre- and post-sales environments where analytical design skills are essential. Successful candidates should be aged 24-35 years and possess an outgoing personality since these positions entail a large amount of user contact at both Board and technician level. Technically, you should offer expertise in Banking (Retail or Merchant), Stockbroking or Accounting environment with a large-scale IBM user or Systems Supplier. Ref: L15/F

Banking Consultants

City: Salaries to £16K

One of Europe's leading independent Systems and Software Houses is currently seeking Consultants for its City-based Banking Division. Suitable candidates will be graduates with a minimum of 5 years' banking and/or financial experience gained in either a commercial, merchant, banking, stockbroking or investment orientated environment. It is essential for all applicants to be fluent in at least one high level language, preferably COBOL, and to have been exposed to mini computers. As a member of a small team you will be involved in feasibility studies through to the full implementation of a client's system. Travelling will be mostly in the London area but occasional overseas visits may be required. Ref: L15/G

Logistix, 10 Grenville Place London SW7 4RW

01-373 3063



Telex: 28800

ASSOCIATION OF LONDON COMPUTER CLUBS
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APRIL 14th 15th & 16th 1981 10am-6pm (7pm 15th)
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POLYTECHNIC OF NORTH LONDON THEATRE
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1981 no 15A

Senior Programmer

£8,538-£9,471 p.a. (Incl.)

We are seeking a Senior Programmer to head a team of three programmers who has 4 years' ICL COBOL experience and with at least one of the following languages: PL/AN, T.P.L., or C.D.E., and a knowledge of Structured Programming. The Authority has invested heavily in Computer Resources and is responsible also for providing Data Processing Services to the neighbourhood Boroughs of Surrey Heath and Runnymede.

The Council's computer configuration comprises an ICL 2804 installation with 96K, EDS60s, 9-Track Tape Drives, Train Printer, 1501 CDE data entry and on-line enquiry and Cash Receipting via 7502s at each Authority.

MINIMAC is used for on-line programming and investigations are in hand to upgrade the configuration having regard to the heavy commitment to on-line systems. There is an extensive development programme and the successful applicant will be closely involved in this.

TEMPORARY HOUSING will be available in approved cases along with generous removal and disturbance allowances together with legal fees on house purchase up to £1,500.

Please contact the Chief Personnel Officer, Council Office, Woking, Surrey (Tel. STD 04882 5931 Extn. 171) for application form and job description. Closing date: 22nd April, 1981.

Woking
BOROUGH COUNCIL

WIGGINS TEAPE (U.K.) PLC DATA PROCESSING

We are a worldwide manufacturer and distributor of fine and specialty papers. We need extra staff to help with an expansion in computer based developments within our Group.

We operate a twin IBM 4341 configuration linked to an extensive U.K. network, including many remote terminal systems, IBM 4331's and IBM Series 1's. The languages used are COBOL, ASSEMBLER, NATURAL in conjunction with ADABAS data-base manager.

We require the following additional staff at our Head Office in Basingstoke (a limited amount of travel within the U.K. will be necessary).

AN ANALYST/PROGRAMMER SENIOR PROGRAMMERS PROGRAMMERS

In addition the company has a vacancy for a
**PROCESS CONTROL/SYSTEMS
ENGINEER**

Applicants should have significant experience on relevant equipment, although we are also looking for individuals with potential.

Wiggins Teape offers the conditions expected of a major U.K. employer including flexible working hours, subsidised restaurant, non-contributory pension scheme, etc.

Please contact Mrs. M. E. Gostling, Personnel Services Officer, Wiggins Teape (U.K.) PLC, Gateway House, Basing View, Basingstoke, Hants. Telephone: Basingstoke 20262, ext. 3101 for application form.

**WIGGINS
TEAPE**

Programmer/Analyst

required to assist with the development of computer systems at the Fund's Breast Cancer Unit based at Guy's Hospital, London SE1. Age 28+ with a degree in Mathematics or mathematically based discipline plus two years post-university experience in BASIC, on-line (real-time) systems, and small machines. Knowledge of data-base management systems desirable.

Salary to £9000 plus in exceptional circumstances extra consideration will be given to qualifications and experience.

Please send full Curriculum Vitae with names and addresses of two referees to: Miss S. M. Hurley, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2A 3PX.

ASSISTANT DP MANAGER

HOME COUNTIES TO £10,000 PER ANNUM

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The successful applicants will be able to show a successful track record selling high-value business in the communications or data processing industry.

Alternatively, if you have a background in technical support in the data communications or data processing industry and feel you have what it takes to be a successful Sales Executive, we would be interested in hearing from you as well!

Guaranteed earnings, including a high basic salary are negotiable around £10k, and on target performance will earn another £5k in the first year.

For more details contact: Ann Fortescue, Data Logic Limited, 29 Marylebone Road, London NW1. Tel: 01-486 7288.

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Over the last three years we have developed and installed a large number of accounting, sales and production DP based control systems. We have user departments anxious to expand the use of these systems and develop new ones. Our development is arrested at present by disorganisation in the computer room. We need a forceful organiser who within three months can increase the utilisation of the Hardware and operators and can tackle the considerable housekeeping problems we have accumulated. It is anticipated that when, after three months the DP department is operating regularly and the satisfaction of user departments, we will again launch into development work with the aid of outside consultant programmers and analysts where necessary.

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Please reply to Box No. 1138, C.W.

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Salary: £9,000 - £12,000 p.a.

Requirements: 2 years' experience in the use of a computer, preferably in the use of a mainframe computer, and a knowledge of COBOL and BASIC.

For full details of this and other vacancies, please apply to the Personnel Officer, Metropolitan Borough of Rochdale, Town Hall, Rochdale, Lancs. OX1 1AA.

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SUPPORT
PROGRAMMER**

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SYSTEMS PROGRAMMER

About £9,500

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Career Opportunities for Site Preparation Engineers

With systems installed in fifteen countries, including North America, our client has established a leading position in providing unique communication facilities which address the Message Switching and Electronic Fund Transfer sectors. Further development of advanced Electronic Office configurations to co-ordinate Telex, Facsimile, PABX and Videotext concepts will maintain this advantage.

Outstanding opportunities, with real prospects for rapid promotion within a highly professional marketing team, exist for Site Preparation Executives familiar with minicomputer equipment. A knowledge of DEC equipment, though not mandatory, would be a definite advantage.

The Site Preparation Executives would be responsible for liaison with the users and the users' contractors, computer room planning, coding and approval of proposed configurations and arranging for their commissioning.

Applicants should have technical experience allied to a diplomatic personality as they will fulfil an important role in the establishment of overall customer satisfaction.

Our client is accustomed to providing very attractive remuneration packages to ensure its continuing success - competitive salary, bonus, company car or allowance, private medical treatment, pension scheme and travel opportunities are the ingredients which have contributed to a twenty-fold growth during the last five years. Location: London.

Applicants should telephone Gerry Meeking at PDL for further details.

PDL PETERSON DAVIDSON LTD
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London NW1 Tel: 01-486 8991

Senior Computer Operator

(wanting to go into programming)
Cardiff

to work on the Honeywell Level 64 DPS-2 computer. Some shift work will become necessary. Initially the post-holder will be responsible for establishing an operating environment for the College's financial system. As the online database membership system develops, he/she will be required to assist the programming team and will ultimately be responsible for maintaining the system. At least two years' experience of operating at a senior level is required. GCOS an advantage, as well as an aptitude for programming, demonstrated by practical experience or appropriate qualification.

Salary scale £5745 to £8020, pay award pending, plus contributory pension scheme.

Application form and further details from the Personnel Officer, Royal College of Nursing, Hensley Place, London: W1M 0AB. Telephone 01-580 2846.

Closing date for return of applications: Monday, 27th April, 1981.

Rcn

Royal College of Nursing

(5127)

ULSTER POLYTECHNIC
Faculty of Science
PRINCIPAL LECTURER DATA PROCESSING OR APPLIED STATISTICS (ONE POST)
LECTURER/SENIOR LECTURER DATA PROCESSING OR APPLIED STATISTICS (TWO POSTS)

Salary Scales:

Principal Lecturer £11298-£12591/£14238

Senior Lecturer £9624-£11328/£12141

Lecturer II £8462-£10431

Applicants for these posts should have a good Honours Degree and/or a Professional Qualification. Teaching experience or professional/industrial experience with an interest in teaching would be considered an advantage. Research and consultancy will be encouraged.

Applicants for a Data Processing post should be able to contribute to the teaching of a range of data processing topics and to specialise in some of these areas.

Applicants for an Applied Statistics post should have an interest in computing and be able to contribute to the teaching of applied statistics across a range of courses considered mainly with business systems.

The Polytechnic is a three-year institution with an independent Board of Governors. It opened in 1971 and has a student population of some 7500. It has extensive modern purpose-built accommodation, including 830 residential places on the 114-acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a scheme of assistance with removal.

Further particulars and application forms which must be returned by 27 April 1981 may be obtained by telephoning 0231 95131 or 0231 95132 or by writing to:

The Establishment Officer, Ulster Polytechnic, Bally Road, Newtownabbey, Co. Antrim BT27 6DB.

Career opportunities in Systems Programming in the North East MAJOR IBM SITE

Our client, one of the country's leading industrial organisations, is proceeding with major development plans for the already large IBM installation. In the next few months we will be recruiting a large number of technical support and systems development staff into positions which we believe offer unparalleled opportunities for career development in both the short and long term.

Initially we are seeking to recruit additional systems programming staff at both an experienced and trainee level. The hardware in use is impressive and the software on which successful candidates will work is extremely comprehensive. It can be said that if it runs on large IBM hardware then our client uses it, or has plans to do so. We know that it is a bit of a sweeping statement and cannot be 100% true - but who cares about the odd few per cent.

Let us first say that they are using or planning to use MVS, VTAM, CICS, DL/1, IMS, DMS, DCF, DLF, VSPC, TSO, SP, CADAM, DISOSS.

We are realistic in our search for candidates and know that we cannot recruit people who have worked with and have in depth knowledge of all that software; however, some experience of the major items is important.

Systems Programmers

Experienced systems programmers are required with at least 5 years programming experience of which 2 years should have been in systems programming. Specific software knowledge should include MVS, VTAM and DL/1. (Ref CW/8109)

c £9000

Trainee Systems Programmers

Candidates must have 2 years programming experience in an IBM installation. Some assembler experience whilst not essential would be an advantage. (Ref CW/8110)

c £7000

Attractive salaries will be negotiated in line with the indications above but could be higher for an outstanding candidate and a comprehensive relocation package is available in appropriate cases.

Contact Ivor Norton at the Harrogate office to arrange an initial discussion which will be arranged on a regional basis.

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Cobol Programmers with at least 2 years' experience and with a background in manufacturing or distribution.

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Candidates with B.Sc. degree or equivalent who can write compilers and who have experience of IBM, Digital or ICL compilers, Digital or ICL compilers/operating systems.

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- Senior Programmers (Cobol).
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In addition to the satisfaction of working in a dynamic environment and sharing one of the best quality of lifestyles in Europe, you will enjoy salary levels which reflect a buoyant economy and growth conditions.

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Applications will be strictly confidential.

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AMP Legg is a major supplier of process equipment to the World's Tobacco Industry and exports some 80-90% of its products. Our Management Information Systems Department now requires an experienced System Supervisor to augment its team.

The successful applicant is likely to have a programming background with a strong interest in Systems Programming including JCL. The ability to control a multi-programming system including a communication network is required. Responsibilities include scheduling, communications monitoring, system libraries and disc utilisation. The installation uses a Remote Data Entry system - Incoform RDE 770 - which is programmable and the Supervisor is responsible for its performance. The mainframe is a Honeywell L64 and current development is towards a communications environment.

There is a total Operations Staff of eight, reporting to the supervisor.

A salary of £8,500 is envisaged and generous relocation assistance will be available if necessary.

Please telephone for an application form or send details of age, qualifications and relevant experience to:

C. N. Watford,
Personnel Manager,
AMP Legg,
Newbury Road, Andover, Hants.
Tel: Andover 62189.

AMP
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The Hague, Netherlands

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DG53,124*

To provide support to the Military Operational Research studies as members of project teams. This involves the design, testing and running of computer programs, operating computer facilities, interactive terminals and graphics displays; preparation of inputs for simulation models; data collection and analysis; presentation of results.

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* Gross annual salary (tax-free) for non-Dutch married officials without children.

Candidates who are nationals of one of the NATO countries are invited to send full details of training, experience and personal data to the Personnel Officer, SHAPE Technical Centre, P.O. Box 174, 2601 CD The Hague, Netherlands, within four weeks of the appearance of this advertisement. Please quote reference (CW/OR) when applying.

(5100)

SYSTEMS PROGRAMMING

IMS and VSI

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- * IMS SYSTEMS SPECIALIST
To install, document and performance test new IMS database software, advising on initial set-up and subsequent monitoring and maintenance.
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To install enhancements to existing VSI software, investigating new options and facilities with consequent benchmarking and documentation.

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A minimum of two years relevant OS/VS1 experience is required. Additional knowledge of VM and IMS would be advantageous. Training will be given to the successful candidate on the shift allowance.
- * TRAINER/TECHNICAL SUPPORT OFFICER
If you have gained sound operational background in OS/VS1 or MVS with additional experience of IMS/VMCME, ICL and associated products and would like to become more technically involved in operations, the company are prepared to give the successful candidate full training in all aspects of technical support. Salary up to £7,500 including shift allowance.

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(5121)

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The Headquarters is located in KIRUNA, the observing stations near TROMSO, IN KIRUNA and in SODANKYLA. The particular vacancy to be filled will require the successful candidate to be stationed at the RANFJORMOEN facility near TROMSO but he/she must be prepared for periods of detached duty in KIRUNA AND SODANKYLA.

Major job assignments in co-operation with existing programming staff to develop and test the systems needed for operations and data acquisition - assist scientific personnel in preparing software for the execution of IONOSPHERIC experiment participate in off-line data analysis.

Prior experience in operating Research Radar Systems and intimate knowledge of NORD 10 computers would be advantageous. From time to time the operating schedule will necessitate irregular working hours.

Salary according to qualifications. Closing date for applications: April 20.

Applications to be addressed to:

EISCAT SCIENTIFIC ASSOCIATION
Box 705, S - 981-27, Kiruna, Sweden

(5151)

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CROYDON from £7,153 p.a.

You will be responsible to the Shift Controller to assist in the efficient operation of the Region's computer equipment. Your duties will include job scheduling, monitoring of operating systems and assisting in the training of subordinate staff.

The present installation comprises of an IBM 3032 and Amnhil V7. A wide variety of both batch and on-line applications are undertaken supporting a large network throughout the Region.

You should be prepared to work on a shift system and have a minimum of two years' operating experience using NVS JES2 and VM. A basic knowledge of JCL and the use of IBM utilities is also required.

Write, giving full details, within 7 days, and quoting Ref. O.6788 to: Personnel Manager, SOUTH EASTERN GAS, Segoe House, Katherine Street, Croydon CR9 1JU.

SOUTH EASTERN GAS

(5151)

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IBM Hardware with DL1 or PL1 to work in the Systems Programming area. Responsibility for all Systems Software. Relocation.

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For just £75 extra, any position advertised in Computer Weekly will also be announced on Prestel screens for five days. The screen announcements will contain the main details given in the Computer Weekly advertisement. And this special computer appointments service will have its own key access number on Prestel.

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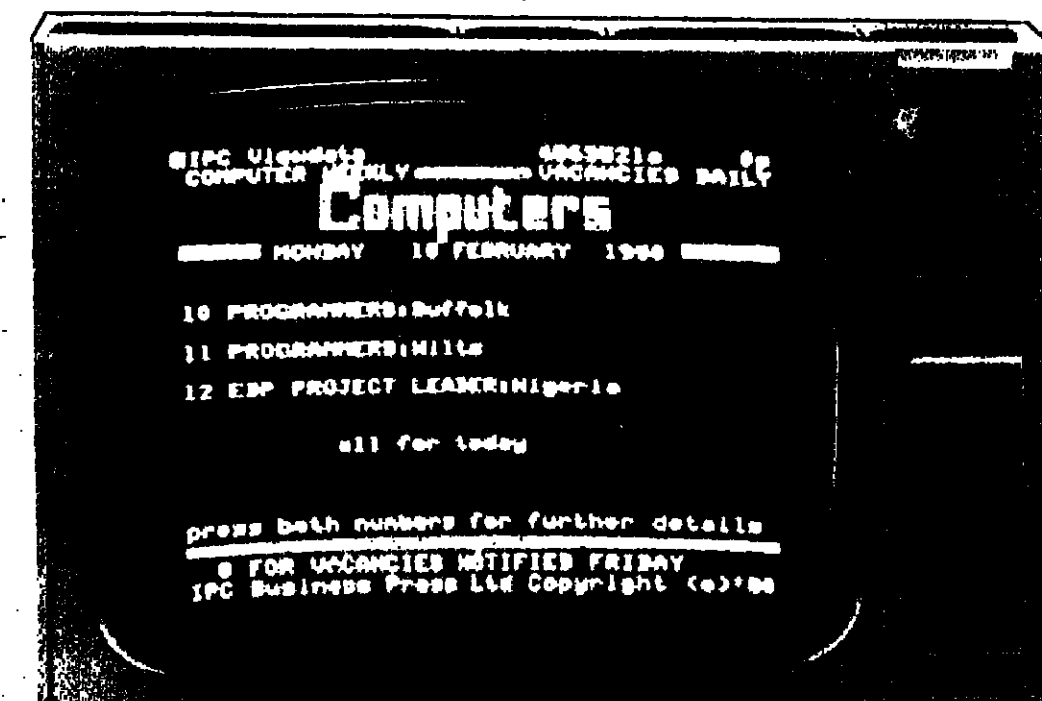
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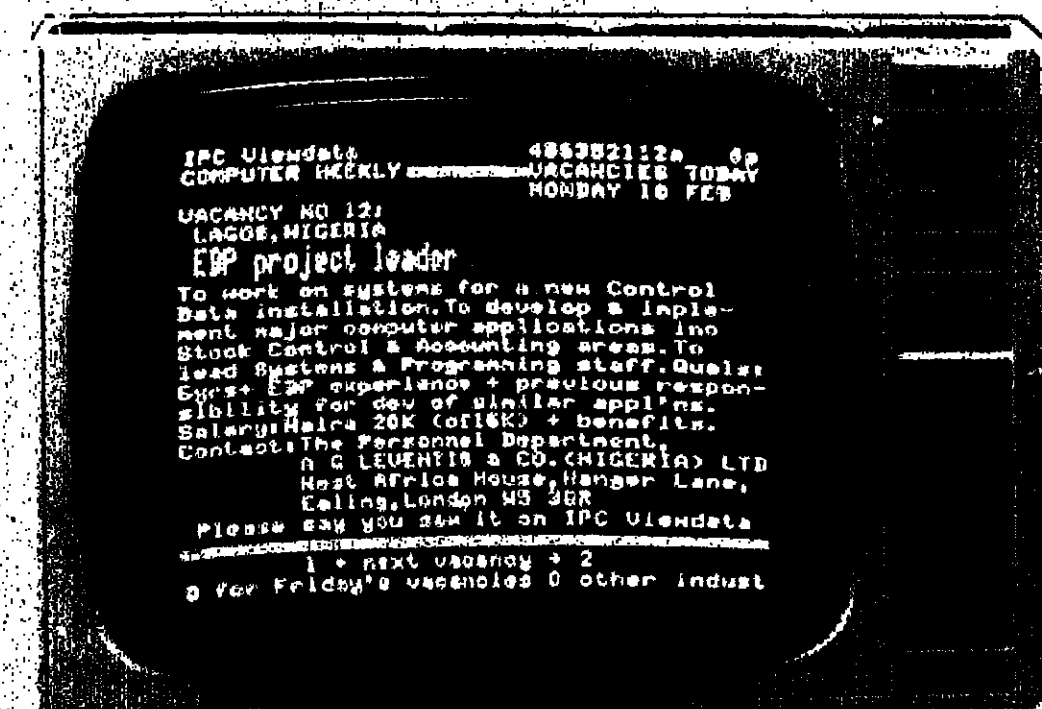
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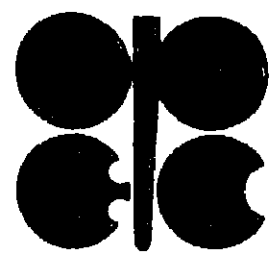
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Profound knowledge in File Management Systems and DPMS packages is necessary. Experience in the design, implementation and operation of data banks. In the enhancement of performance and in establishing standards for operational procedures and documentation is required. The successful candidate should have implemented at least a medium-size database application using one of the major DPMS in a multi-user environment.

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Deep knowledge of IBM operating systems (MVS/TSO, VM/DMS) and their associated hardware components. Must be familiar with installation and maintenance of software packages and a detailed knowledge of IBM assembler language, JCL and usage of interactive monitors. Knowledge of CICS and STAIRS would be an asset. Some knowledge of Digital PDP series minicomputers also welcome.

APPLICATION PROGRAMMER

Specific working experience in the development of D.P. applications is required; thorough practice in FORTRAN is necessary, as well as basic knowledge in operating systems, DPMS and file management systems. Educational background in methods of Operations Research and experience in large-scale modelling is welcome.

The posts are permanent and provide for tax-free salary and social benefits. Applicants are requested to send their detailed curriculum vitae including job history and salary progression as well as a recent photograph to:

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Technical Support Manager

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(— To manage a group of applications specialists and support our clients and salesforce!)

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Application forms and further details from Controller of Personnel Services, Town Hall, Forest Road, London E17 4JF.
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Please quote Ref. B3875; closing date 1st May.

Waltham Forest

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How to respond to an agency advertisement

MANY recruitment advertisements deliberately use the name of an employment agency rather than that of the potential employer. This is because a company using its own name runs a severe risk of revealing, if only by implication, information about its activities and general situation to such interested parties as competitors, recruitment agencies — and its own staff.

A lot of implied information can be gleaned from recruitment advertising, such as competitive data related to marketing strategy, information for existing employees related to terms of employment for particular job functions; and the possibility of high-level company problems due to the movement of senior personnel.

Recurrent advertising suggests a high rate of staff turnover rather than rapid expansion; advertisements are a source of potential business for all recruitment agencies; and re-advertisement of a previously failed exercise suggests the job is unattractive.

However, the most common reason why companies advertise under the banner of a recruitment agency is not an absolute need for secrecy, but an endeavour to communicate with potential candidates who, as part of the market's overall population, are likely to have some misconception of the true nature of the organisation concerned.

It is the nature of salespeople, for instance, often to have a completely jaundiced view of their competitors. They are so accustomed to selling against them that they become self-conditioned into believing that nothing good could possibly emanate from such companies, and a few thousand unlikely to consider them as potential future employers.

By advertising via an independent recruitment agency a company is able to avoid this and other kinds of unfounded or at least out-of-date, prejudice, and make sufficient contact at least to get the truth across via a responsible third party.

As a result of this, candidates who respond by letter or telephone are often unaware of the advertiser's real identity. Many applicants

and the occasional recruitment agency make telephone contact merely to discover who the company is, but clearly there would be little point in using an agency if the facts could be picked up so easily.

Most recruitment companies are prepared to state whether the name of their client is contained within a list of previous employers, declared by the applicant just in case he is applying for a job with a previous or even his present employer.

Even in such extreme circumstances, no recruitment agency can afford to jeopardise its professional integrity by breaching the confidentiality of its candidates or clients. Consequently, there is no harm in applying for any job even if one is subsequently underwhelmed by its attraction.

The chances are that the job opportunity will be of interest and as a result, formal application can be made in order to proceed to the interview stage, provided there is reasonable compatibility between the specification of the job and the experience and qualifications of the applicant.

If the job is advertised on behalf of a specific company, avoid any agency which is prepared to discuss the requirements of other clients unless one is definitely excluded from the job originally applied for. Any truly professional and ethical agency will guarantee that response to advertisements which have been funded by the client will be considered for their requirement alone, until such time as either the candidate or the client specifically declare their total lack of interest.

Eventually, the candidates with appropriate qualifications are interviewed by the recruitment agency and this is when the name of the potential employer is usually revealed, along with details of the company's history, product, marketplace and the job itself.

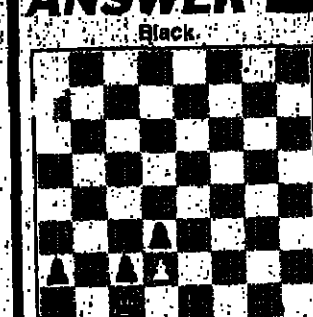
Ninety-nine times out of 100, this process is absolutely straightforward and handled with complete professionalism by all parties concerned. The agency advises the candidate on the suitability of his qualifications for the job and the compatibility of the job with the needs of his career.

The right people for the job (as opposed to merely the best of the applicants) are shortlisted. The employer and the candidate then meet and eventually decide whether or not to work together. Whatever the outcome, the air is clean; with no corruption of the character or security of the individuals concerned.

Unfortunately, this is not always the case, and next week I will write about some of the risks to potential employers and employees alike.

Alan Williams

PUZZLE ANSWER



COURSES

A NON-RESIDENTIAL workshop entitled, Practical Project Management is intended for those controlling or likely to control computer projects. The course, which examines the costs, control and people involved in such projects, can be adjusted to personal style and the general project environment. It will

be held at the Kensington Close Hotel, London, beginning on April 27. The fee is £425 + VAT and details are available from the organiser, BIS Applied Systems, York House, 199 Westminster Bridge Road, London SE1 7UT. Alternatively, telephone Jackie Prew on 01-261 9237.